The Journal of the
American Medical Association

VOL. XXII. CHICAGO, JUNE 30, 1894. No. 26.

ADDRESS.

SOME SURGICAL SINS.

The Chairman's Address read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN B. ROBERTS, A.M., M.D.
PHILADELPHIA.

A very significant fact in the surgical literature of recent months has been the evidence of reaction against an over-hasty adoption of operative methods of treatment. The general conviction of the relative certainty with which operative attacks could be freed from septic consequences quickly bred a crop of surgeons whose surgical learning scarcely kept pace with their operative zeal and the force of whose dogmatic assertions was only equaled by their rapidity in publishing tables of cures.

The low death rates of the new surgery made such a contrast with the mortalities recorded in accepted text-books that the men who believed the new gospel—naturally the young—were enchanted by the safety with which they could operate for conditions that older and more cautious surgeons hesitated to so treat. Many of us have stood appalled at the temerity, and astonished at the pathology, of these operative members of the profession. An omen of true progress can be seen in the tendency of even these to so restrict the use of the knife, and to reflect that the true surgeon must have accurate pathologic knowledge and good surgical judgment as well as operative dexterity. Of what advantage is it to a patient to undergo an operation, within the scheduled number of seconds, or with the loss of the promised minims of blood, if the operation was not demanded? Who cares whether he carries a scar one or two centimeters in length, if he could have been equally well cured without scar, and without the necessity and expense of a surgical procedure? "Look at the dozens of operations done by me this year without a death," says the operator. His less enthusiastic neighbor thinks of the proverbial kinds of falsehoods, "lies, damned lies, and statistics," and replies: "Reports of large numbers of cases subjected to operation seldom fail to beget a suspicion of unjustifiable risk."

It seems to me that a revival of learning in surgery is upon us, a going back to the study of etiology, symptomatology, diagnosis and treatment, destined to restrain unseemly haste in adopting the scalpel as a panacea. If my observation of late events has been correct and unprejudiced, the operative madness has usually, though not always, been endemic among those whose preliminary educational training has been circumscribed and whose medical study and experience have been in one field rather than in all. Dogmatists in science and in religion are most usually found among those of limited scientific and worldly knowledge. No one will deny the assertion that the best professional judgment would be found in a man who successively had had years of medical, surgical and special experience. The present breadth of medical science prohibits such experience in a human life; but the nearer a physician attains it the more valuable is he to the community.

The exaction of preliminary education, the lengthening of college courses and the association of doctors in meetings, such as this, are the correctives which will cure the specialist of his egotism, compel the conservative to know the value of new things, and drive the sluggard and ignorant to his medical journals and books. A true surgeon can not lack broad culture, modest self-denial, accurate judgment and unselfish regard for his patient.

This at least was the opinion of Thomas Vicary, Sergeant Chyrurgeon to Henry VIII., who well tells us "what properties and conditions a man must have before he be a perfect Chirugion." His advice in 1577 may well be studied in 1894. "The first (I sayde) he ought to be learned and that he know his principles, not onely in Chirurgerie but also in Phisicke, that he may the better defende his Surgery: Also he ought to be seene in Natural Philosophie, and in Grammer, that he speake congruitie in Logike, that teacheth him to proue his proportions with good reason. In Rethorike, that teacheth him to speak seemely and eloquently; also in Theorike, that teacheth him to know thinges naturall, and not naturall, and thinges agaynst Nature. Also he must know the Anatomie, for al Authors write against those Surgions that worke in man's body not knowing the Anatomie, for they be likened to a blind man that cutteth in a vine tree for he taketh more or lesse than he ought to doo." . . .

"The ijd, I said, he must be expert: For Rasus sayth he oughte to knowe and to see other men work and after to haue vse and exercise. The thirde, that he be ingenious or witty: For al things belonging to chirurgerie may not be written nor with letters set foorth. The fourth (I sayde), that he must be wel manered, and that he haue al these good conditions here following:" . . . .

"That a Chirurgion must take heed he deceiue no man, with his vayne promises, nor to make of a smal matter a greate, because he woulde be accounted the more famous. Likewise, they shal geue no counsayle except they be asked, and then say their aduise by good deliberation, and that they be wel aduised afore they speake, chefly in the presence of wise men. Likewise they must be as priuie and as secrete as any Confessour of al thinges that they shal eyther heare or see in the house of their pacient. . . . And see they neuer prayse them selues for that redoundeth more to their shame and discredite than to their faume and worship: For a cunning and skilfull Chirurgion neede neuer vaunt of his dooings, for his works wyll euer get credite ynough. Likewise

that they despise no other Chirurgion without a great cause: For it is meete that one Chirurgion should loue another, as Christe loueth vs al."

John of Arderne who wrote two hundred years earlier than Vicary appears to have been familiar with some of our nineteenth century tendencies. He was a specialist and, in accordance with the inherent tendency, wrote a treatise on anal fistula. After detailing the names and addresses of his patients and giving his own residence, he says, according to a fifteenth century translation of his Latin monograph:

"All these foreseid cured I afore the makyng of this boke oure lord Ihsu ye blessid God knoweth that I lye nogh*t*. And therefore no man dout of this thof although old famous men and ful of clere (renowned) in studie haue confessed tham that thei fande nat the wey of curation in this case; for God that is deler or rewarder of Wisdom hathe hid many thingis from Wise men and sligh*e* (cunning) whiche he vouchesafeth afterward for to shewe to symple men.". . . . . "Therefore I pray that the grace of the holy gost be to this werke that he vouchesaf for to spede it; that the thinges whiche in wirking trewly I am ofte tymes experte I may plenevly (fully) explane tham in this litel boke. It is lefull forsoth for to sey that (what) is knowen and for to witnes that is seene.

"And this I sey that I know nogh*t* in al my tyme ne heard nogh*t* in al my tyme of any man nother (neither) in yngland ne in partiez biyonde the see, that kouthe cure fistula in ano outake (except) a frere minor that was withe the prince of Walez in gascon and gyan (Guienne) whiche rosed and bosted hym that he had cured the forseid sekenes. And at london he deceyued many men. And when he mig*h*t nogh*t* cure som man he made suggestion to tham that no man mig*h*t cure tham and that affermed he with swering that yif the fistule was dried that the pacient at the next schuld nogh*t* eschape dethe whiche forsoth ylefte and forsake of hym I cured perfitely."

Notwithstanding this author's characteristic vaunting of his own special skill he appears to have been too wise to speak against the general practitioners, for in his book on "Ye manere of ye Leche"—"the Conduct of the Physician,"—he gives this advice:

"He that skorneth other men shal not go away vnskorned. Yif ther be made speche to hym of any leche nouther sette he hym at nough*t*, ne preise hym to mich or commende hym but thus may he curteysly answere, I haue nogh*t* eny knowleche of hym, but I lerned nogh*t* ne I have not herd of hym but gode and honeste; and of this shal honour and thankyngis of eche party encresse and multiplie to hym; aftur this, Honour is in the honorant and nogh*t* in the honored."

The cultivation of a habit of accurate statement, as well as of observation, would save many of us from criticism and teach us to be cautious about criticising others. Mr. Charles A. Dana in a recent address on journalism insisted that the faculty of seeing a thing as it is was one of the most precious ends of a good education, and advised newspaper men to tell what they knew accurately and without exaggeration or prejudice. It is usually a habit of inaccurate statement which impels a surgeon to say that an important operation is absolutely safe; and then calmly report a list of such cases containing several fatal operations. The surgeons who open an abdomen seven or eight times are almost as certainly lacking in judicious and accurate study of symptoms as the woman who permits it is ignorant of surgery. Yet a patient recently requested abdominal section at one of the hospitals with which I am connected, saying that she had already been subjected to seven such operations. I would think her statement untrue if my ears had not heard and my eyes seen similar things.

Due regard is not given by us to the influence of the nervous system upon the health. Many patients can be cured, by medicine or psychic remedies, of symptoms which would induce some surgeons to resort at once to mutilating operations. This statement does not apply alone to pelvic conditions but to affections of joints, muscles and viscera. My experience at the Woman's Hospital in Philadelphia, and in private practice justifies this assertion.

I am impelled to believe, though I dislike to do so, that the establishment and personal control of private hospitals by surgeons is a distinct evil. Such institutions seem, to me at least, to tend to warp the judgment; and make the surgeon's prospective income somewhat obscure the correct view of the patient's good. Practically it is rather difficult for a doctor to keep a hotel for patients without having his professional ethics a little blunted by a hotel proprietor's proper desire for many and long-staying patients. I regret that our human nature is liable to be thus tainted, because surgery can be better done, and sometimes more cheaply done, in a hospital than in a patient's home. I am convinced, however, that the truest ethical spirit is not developed by these private hospitals maintained for the pecuniary and professional advantage of one man. While some may do no harm, many tend to develop selfishness, theatrical operations, and a mercenary spirit foreign to the highest type of surgeon. I confess a similar distrust of private and corporate sanitaria. I know they frequently do much good for invalids, but the bestowal upon physicians by some of these institutions of shares of stock, proportionate to the number of patients sent for treatment, does not increase my confidence in the system.

Demanding unusually large fees for professional services is a surgical sin, which the increasing number of skilled surgeons is happily correcting. To send a bill for a large amount simply because the patient is wealthy does not appear to be just, and to obtain the money because the patient is in fear of death and dares not employ a less expensive attendant makes one think of the methods of the footpad who demands your money or your life. A high degree of skill and heavy professional responsibility undoubtedly deserve adequate pecuniary recognition, but the true surgeon will always recollect that practicing surgery for money alone degrades a noble profession to the level of a trade.

Declination to see a poor patient with a practitioner who desires the advice of a consultant is a similar wrong. Our common brotherhood teaches us to charge no fee for attending another doctor and his family. It is just as imperative that we go to his help when an obscure case gives him anxiety. A surgeon who will not aid another with his counsel because the patient can not pay the regular fee is a poor representative of the medical guild. Equally censurable is the hospital surgeon who allows insignificant causes to keep him from formal consultations called by his colleagues.

Not less destructive to the purposes of scientific

surgery is the use by many surgeons of secret nostrums. While many of these may have active ingredients, their use is unscientific and unworthy of us, because we have no knowledge of their *exact* composition, and hence can not treat our patients with accuracy and precision. A distinguished English surgeon once said: "The glory of surgery is precision." Very little precision characterizes the methods of the nostrum-employer; hence his surgery is usually far from glorious. Dr. J. T. Graham, of Virginia, has justly said on this topic: "Whenever a physician becomes too negligent to study his cases and prescribe well-known and tried remedies for definite pathologic conditions, he is no addition to his profession. As long as pure drugs are manufactured, as long as scientific works on materia medica and therapeutics are written, as long as ample facilities for acquiring a knowledge of medicine exist, there is no excuse for the physician acquiring the habit of prescribing patent medicines."

ORIGINAL ARTICLES.

A CRITIQUE OF THE SPOROZOAN THEORY OF MALIGNANT NEOPLASMS FROM A MICRO-TECHNICAL STANDPOINT.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY A. P. OHLMACHER, M.D.

CLEVELAND, OHIO.

PROFESSOR OF PATHOLOGY AND BACTERIOLOGY, MEDICAL DEPARTMENT UNIVERSITY OF WOOSTER, CLEVELAND, OHIO; FORMERLY PROFESSOR OF EMBRYOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, CHICAGO; AND OF PATHOLOGY IN THE CHICAGO POLICLINIC.

The present condition of the sporozoan theory of the etiology of malignant tumors in man and the higher animals is one of much confusion. The student of this subject is confronted by a multitude of imperfectly digested contributions from investigators of all ranks of excellence. It is astonishing to note the variety of objects which have been assigned to the class of cancer parasites by over enthusiastic workers. Almost every object which presents itself in the histologic study of malignant tumor tissue has been described as the carcinoma organism, from the blood elements on the one hand, to the tumor cells themselves, on the other. Red blood cells, leucocytes, blood plates, invaginated cells, endogenous cell formations, irregular nuclear division products, metabolic cell products, cell-degeneration products, capillaries filled with blood corpuscles, and other objects, familiar to the careful histologist, have been interpreted as parasites by some investigator in this field. The fact of the matter is that this mass of unscientific material, to which daily additions are being made, has brought the whole subject into ridicule and, instead of increasing our knowledge of this vital question, this worthless material has only served to burden and retard future research.

It is a difficult matter to assign all of the causes that have led to this distressing situation. One point, however, will impress itself upon the careful student of this question, and that is that the majority of contributions come from men of too narrow preliminary training; that is, the investigators may be too readily classified into the pure biologists or the pure pathologists. That is to say, of the pathologists, for instance, that while they have shown a due amount of familiarity with the histologic structure and clinical manifestations of malignant neoplasms, they have shown a lack of fundamental knowledge of the morphology and life history of that class of organisms to which they have assigned the etiologic rôle; that is, the class *Sporozoa* of the sub-kingdom *Protozoa*. Conversely, the contributions of the biologists who have attacked this problem proclaim their familiarity with the comparatively little that is known of the life history of the various sporozoa; but their works exhibit an ignorance of the pathologic and clinical side of the study of malignant tumors. It is not uncommon, even in the very recent papers, to find the most absurd statements regarding the classification and zoölogic position of the sporozoa, to say nothing of the morphology and physiology of these organisms.

One thing at least is obvious, and that is that all investigators in this direction should thoroughly familiarize themselves with the peculiar organisms whose presence in tumors is suspected. Had not Koch been familiar with the considerable knowledge of bacteria accumulated at the time of his classical researches upon tuberculosis, it is doubtful whether his remarkable studies would have been given to medicine in the very complete condition which marked them a scientific masterpiece.

It is not within the province of this paper to enter into a detailed discussion of the foregoing statements, nor is it possible to touch upon the manifold aspects of the sporozoan theory of malignant neoplasms. The work thus far accomplished has been thoroughly reviewed upon several occasions, the most recent review being the very excellent bibliographical and critical summary of Stroebe,[1] to which the student may be referred.

The study of the parasitic organisms of tumors has thus far been almost exclusively confined to the microscopic examination of sections of fixed and stained tumor tissue. Under this head comes the work of the large majority of investigators who have attained prominence in the discussion of this subject. It is to this particular method of study that we shall direct attention.

There is a growing conviction in the minds of many students of biology and pathology that the wonderful advances in micro-technical methods of the last decade are becoming elements of serious danger. A reaction against the extreme tendency of the new microtomy is slowly finding expression. The fact that a host of microscopic methods are in vogue which rest upon purely empirical bases can not be denied, and these empirical methods must all come within the scrutiny of exact scientific research before their results can be accepted. It is scarcely too much to predict that a day of reckoning is coming in microtomy when many beautifully constructed histologic edifices will be rudely shattered; and in this destructive analysis American investigators, with their natural skepticism and keen criticism, will take no small part. The work has already begun in several contributions dealing especially with the anatomy and histology of the nervous system. The artificial products resulting from a mixture of numerous reagents of unknown effect, the artificial products of the mechanical aids employed in gross and microscopic anatomy, and the artificial products of our optical appliances—all of these so-called

[1] Cent. f. Allgem. Path. u. Path. Anat. V Band. Nos. 1, 2, ?, 1894.

"artefacts" must be rigidly analyzed and put upon firm scientific foundations before a good working basis shall have been reached.

Into this category comes all of the work upon the tumor parasites which is founded upon a microscopic study of the tumor tissue alone. In consulting the chapter on technique in each of the various papers upon the cancer parasite, it will be noted that all manner of combinations of fixing reagents and staining reagents have been employed. To one who has made an analytical study of reagent-effect in histology, it must at once occur that from this variety of technical processes a variety of effects have been produced in which the *reagents themselves* played a very essential part.

Upon two previous occasions I have endeavored to direct attention to the importance of a consideration of the reagent effect in the studies upon the sporozoan parasites of tumors. In the first communication[2] I tried to prove that the work of Podwyssozki and Sawtschenko, and of Stroebe, was of limited value, because these investigators employed in their technique a combination of safranin and picric acid in staining, which, according to my experiments, gave rise to dangerous artefacts in the tissue elements. I found, for instance, that if safranin staining was followed by a washing out with picric acid-alcohol, minute crystalline artefacts were very frequently deposited in the section thus stained.

These very minute artefacts resembled in size, shape and color, the bodies described by Podwyssozki and Sawtschenko, and by Stroebe, as segmentation products of their sporozoan parasites, and I could not resist the conclusion that they had these artificial products under observation.

In a second paper[3] I described a new species of myxosporidia which I had discovered in the kidney of the common toad, and as a result of certain microtechnical studies upon these sporozoa, I again directed attention to the dangers underlying the carcinoma investigations. This second paper was supplemented by a communication from Dr. Whinery,[4] who extended the description of the morphology of this myxosporidium, and who recorded further microtechnical studies.

Since the publication of my first paper I have continued the study of reagent-effect in tissues, and upon the sporozoan parasite of the toad, and I desire to bring a brief outline of this work to your attention.

My first observations were confined to an analytical study of reagent effect in normal tissues from a variety of vertebrate animals. The object of this work was to assign, if possible, the significance of the *method* in modern cytologic research. In this study the older methods of hardening and staining were discarded, and a series of fixing agents and staining agents, as advised by recent cytologists, was employed. Regarding this work I can only say here that the results were frequently astonishing, and that I was most profoundly impressed with the very great significance of technical modifications in all work of this character. It was in close connection with this study that I undertook an investigation of the carcinoma organism question, and it quite naturally followed that I was much inclined to scrutinize all of my work on this subject from the standpoint of the microtomist.

[2] Journal of the American Medical Association, Vol. xx, No. 5, 1893, pp. 111-117.

[3] Journal of the American Medical Association, Vol. xx, No. 20, 1893, pp. 561-567.

[4] New York Medical Journal Vol. lviii No. 28. 1893, pp. 660-662.

Upon the discovery of the myxosporidia in the kidney of the toad, I embraced the excellent opportunity afforded by these specimens for a comparative study of the reagents commonly employed by carcinoma investigators. Here was a good-sized sporozoan present in a matrix of animal tissue. What better opportunity for a control study of micro-technical effects could be desired?

In order to make clear the following summary of the experiments in the micro-technical reactions of these myxosporidia in the kidney tissue, it will be well to direct attention to the structure of these organisms, and to their relations to the host's tissue. In his paper, Whinery[5] has given a very clear description of these myxosporidia, and he has accompanied the description by a good diagrammatic illustration.

These sporozoas were found only in their spore form. The spore is an oval structure, bounded externally by a striated, bi-valvular shell. Within the shell are found two spherical bodies, highly refractive in fresh preparations, and termed by Gurley, whose nomenclature we have adopted, capsules. Opposite the capsules lies a plasmatic mass, crescentic in shape, and containing in its substance several small, highly refractive bodies, the "nuclei" of Thelohan; this mass is called the sporoplasm. The myxosporidian spores lie in the tubules of the infected kidney, sometimes embedded in an albuminous secretion. The spores are frequently present in such numbers as to fill the entire lumen of a kidney tubule.

Pieces of kidney tissue containing the sporozoa were killed in a variety of fixing solutions, immediately after the death of the animal from chloroform. Of these fixing agents I directed especial attention to Flemming's solution, corrosive sublimate, absolute alcohol, Hermann's solution, Peryni's fluid, and Carnoy's solution. Concerning the behavior of these solutions upon the spores of this myxosporid, it may be briefly said that Flemming's solution, Hermann's solution, and Peryni's fluid, were very harmful to the spore structure. In other words, solutions containing chromic acid, or osmic acid, were unsuited to the preservation of these organisms. It must be remembered that these mixtures take first rank among the reliable fixing solutions of the cytologist, and that they are largely employed by recent carcinoma investigators. These three mixtures all produced a shrinking of the spore shell, and a distortion of the spore contents. Often this distortion of the spores was so extreme as to make it difficult to recognize these bodies in the kidney tubules. Not only did these fixing agents distort the spores as a primary effect of their application, but they interfered greatly with subsequent staining. With all of this harmful action on the myxosporidia, these fixing solutions preserved the cells and nuclei of the kidney tissue with their usual faithfulness.

Absolute alcohol, and Carnoy's chloroform acetic alcohol mixture gave very excellent results. The sporozoa were preserved without distortion, and the subsequent staining with appropriate dyes was very successful. With these media the kidney tissue elements were also well preserved.

Corrosive sublimate, while preserving the sporozoa and the tissue elements without harmful distortion was not entirely satisfactory, for the reason that it was washed out of the sections with great

[5] Loc. cit.

difficulty; and it was no uncommon occurrence to find, even after the most vigorous attempts to remove the sublimate crystals (treating sections with tincture of iodin and alcohol, as advised by Heidenhain), that these crystals still remained behind, particularly within the shells of the myxosporidian spores.

In this record of my experiments with staining solutions, I shall confine myself to a brief outline of the results obtained by those reagents which have found especial favor among the carcinoma organism investigators. I shall describe the combinations with absolute alcohol fixation in some detail, because this fixing agent gave a very faithful preservation of the kidney parasites. All of these descriptions refer to sections of tissue, cut after paraffin embedding, affixed to the slide by the water-albumen method, stained on the slide, and mounted in Canada balsam.

Absolute Alcohol; Ehrlich's Acid Hematoxylin, followed by Eosin.—With the low power (Leitz No. 3 objective) the myoxsporidia can not be detected in the kidney tissue. The kidney elements are well stained. With high power (Leitz No. 7) the myxosporidian spores can only be recognized with difficulty. Were not their presence and location previously known, the detection of the spores in these sections would be a fruitless task. Kidney tubules filled with the organisms might easily be overlooked. The spores are massed together in an albuminous matrix; and they appear as faintly outlined, structureless bodies. Only occasionally do the spores show a faintly outlined, purple capsule. The curious feature about this staining combination is that the filaments (thread-like flagella projecting from the capsules through the spore shell, beyond the spore) of many spores are often deeply stained. In tubules containing a mass of spores, the filaments radiate in all directions, producing a prominent network of dark stained threads.

Absolute Alcohol; Ehrlich's Hematoxylin, and Babe's Safranin.—The kidney tissue shows a characteristic double stain, with a predominating purple color. The spores appear as brilliant red, shrunken bodies; and their contents can not be clearly outlined. The filaments are again prominent and stain a deep red color.

Other mixtures of hematoxylin gave essentially similar results.

Absolute Alcohol and Pfitzner's Alcoholic Safranin.—In sections well washed out with acidulated alcohol, after staining, the sporozoa appear as very prominent, deep red bodies, in a nearly colorless ground. The capsules stain with especial vigor with this solution, and stand out in the preparations with startling distinctness. The sporoplasm stains a light red color; while the shell and filaments remain unstained. This is the most successful stain of the series on account of its wonderful selective affinity for the capsules, and because, with good fixing agents (absolute alcohol, corrosive sublimate, and Carnoy's fluid,) it never deposits artefacts in the spores.

When Pfitzner's safranin is followed by aqueous methyl blue as a contrast stain, a beautiful double stain is produced. The kidney tissue stains blue; the capsules of the spores, brilliantly red; and the sporoplasm, a light blue. I have, in a former paper, directed attention to this marked dichromophilism of the spore contents of this organism. With this safranin staining, the spores appear small because the shells do not take the stain.

Absolute Alcohol; Babe's Anilin-Water Safranin.—In sections washed with acidulated (HCl) alcohol, the spores are prominent as large pink bodies. The capsules are stained a moderate red; the sporoplasm a faint pink; and the *shell*, itself, partakes of a light pink color. This staining of the shells makes the organism appear larger than in specimens stained with alcoholic safranin. Many of the shells exhibit the characteristic striation; and some show the valve junction line.

Babe's safranin, followed by picric alcohol (the method of Podwyssozki and Sawtschenko) gave remarkable preparations. The spores appeared as prominent deep reddish-brown bodies. On examining these spores closely with a high power, it was found that the *spore shells were filled with masses of deep red artefacts.* I at once recognized these artefacts as the safranin picric acid crystals. These crystalline artefacts from their size, shape and location within the spore shell, might readily have been looked upon as segmentation masses (as "sickle-shaped embryos") had not this staining been controlled by numerous other combinations. I looked upon this experiment as a striking corroboration of my previous work on the safranin picric acid reaction.

Absolute Alcohol; and the Ehrlich-Biondi Reagent.—These preparations show the characteristically beautiful tissue staining of this reagent. Upon the sporozoa, however, the stain was a dismal failure. The spores appeared to resist the stain and only occasionally the sporoplasm of a spore would show a trace of dirty green color. The capsules and shells remained uncolored.

Absolute Alcohol; Russell's Carbol-Fuchsin, and Carbol-Iodin green combination.—This staining method proved excellent for the sporozoa. The capsules stained a deep red with the fuchsin; and the sporoplasm took a well marked green color. The shell was clearly visible in these preparations.

Absolute Alcohol; and Gentian Violet after Gram's Method.—The spores are prominent on account of their deep purple color. The shells are very heavily stained; so intensely, indeed, as to often hide the other spore structures. Many shells exhibit their striæ. In one preparation, after this method, the filaments were stained.

Corrosive Sublimate; and Carnoy's Fluid; in combination with the above-mentioned stains.—In a general way the results were similar to those obtained with tissue fixed in absolute alcohol. The only difference noted was the occasional interference of sublimate crystals, in preparations imperfectly washed. Contrary to my expectations, the Ehrlich-Biondi reagent did not give better preparations in sublimate fixed tissue, than in tissue fixed in absolute alcohol.

Flemming's Solution; Hermann's Solution; and Peryni's Fluid; followed by the above-mentioned stains.—Since these fixing fluids did not preserve the spores well, it naturally followed that the staining effects were poor. A variety of curious artefacts were produced in the stained spores, distorted by these fixing fluids. It is impossible to indicate these artefacts here, and we may dismiss this subject by saying that these three standard fixing solutions, together with all staining combinations, are absolutely unsuited for the preservation and demonstration of the spores of these myxosporidia.

All of these experiments, following closely upon a study of tumor tissue after the methods in vogue

among the carcinoma organism investigators, have impressed me very profoundly with the inadequacy of this kind of study; and I must again insist that with all their dangers, the methods of new microtomy can never, in themselves, aid us in solving the very important question of the etiology of malignant tumors.

THE CLINICAL RECOGNITION OF MALIGNANCY IN TUMORS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY CHARLES A. WHEATON, M.D.

ST. PAUL, MINN.

This subject has invited the attention of some of the brightest minds of our generation. To attempt a delineation of the specific outlines of a clinical picture of malignant disease is an undertaking of no small dimensions. It is usually easy for the thoroughly trained student of pathology to distinguish between benignancy and malignancy when he has sections of each under his microscope; but it is often a very different matter when the cases are presented clinically, and he has to straighten out the tangled threads of his clinical story that he may advise and act judiciously. The microscopist may be able to tell us all about the histologic character of cancer in its various forms, but it is primarily the surgeon's function to formulate his plan of defense and attack, on gross appearances and the clinical history. Prof. Daniel Lewis, of New York, in his little monograph (edition of 1892) designates all malignant neoplasms as "cancer," and such a classification is eminently satisfactory because of its simplicity, and I shall adopt it here in my paper.

Modern pathology has practically renounced allegiance to the old constitutional theory of the origin of cancer. The physical idiosyncrasy which renders one individual more susceptible to the development of cancer than another may be acquired by heredity, and in our clinical research the genealogic tree should be carefully scanned, with a view to establishing this etiologic factor. Gross finds in 712 cases of breast cancer, 11.28 per cent. traceable to predisposition of this character. Mr. Herbert Snow, of London, in an able article on "Early Diagnosis and Practical Surgery of Cancer," states that malignant new growths are almost entirely restricted to women above the age of 34, and to men past 40. Further, they appear in organs which have fulfilled their functional purpose, *e.g.*, "the sexual organs of women; or in tissues whose vitality has become conspicuously impaired, such as the buccal mucous tract of men. Hence we are bound to look with grave suspicion upon any incipient tumor formation in these parts of the respective sexes; in people growing old; in those whose general health and energies have from any cause become markedly undermined."

It is a fact generally conceded by all surgeons of experience, that the ghastly records of the operative treatment of cancer are, in a large measure, the result of the tardy recognition of the existing disease. When we review the statistics of the Registrar-General of England, as made by Dunn, with reference to cancer, we are appalled at the record: "During the first decade in which the study was made, namely, from 1860 to 1870, the total number of deaths from cancer was 80,049, the annual average increase being 248; during the second decade, 1870 to 1880, the deaths amounted to 111,301, the annual average increase being 320. If, as is assumed by the writer, the average increase of population is about 1 to 10 during each succeeding ten years, it is evident that this dreadful malady is outstripping very much the numerical increase of population."

How important, then, it is that we as individual members of this noble profession, should attempt to familiarize ourselves with the disease in its manifold forms, in order that we may contribute our mite to minimizing these frightful ravages. Accepting Dr. Snow's dictum, we are constrained to consider as one of the most important of the clinical questions in the investigation of this disease, the age of the individual. As before stated, with reference to the hereditary predisposition to cancer, we can satisfy ourselves that there is some occult condition of the tissues which is thus transmitted, by consulting the statistics of such men as Sibley, of the younger Gross, of Paget, Baker, Broca and many other distinguished authors and teachers.

Dr. Snow states that "it may be laid down as a practical axiom that no average species of malignant tumor in the adult ever appears without an adequate and generally ascertainable existing cause." He says: "11.7 per cent. of cases of breast cancer follow sudden injury, a blow or a fall; the remainder are consequent upon some agency of a neurotic character impeding the normal devolution of the mamma."

In almost identical language the same opinion was entertained by the late lamented Prof. Agnew, of Philadelphia. On page 656 of the last edition of his work on "Surgery," Vol. III, he says: "The influence of emotional causes, as protracted grief, the nervous depression following loss of property, anxiety and worry as predisposing factors in carcinoma, has been forcibly impressed on my mind for several years, especially with reference to cancer of the mammary gland."

In this connection it should be borne in mind that females furnish a much larger excess of cases of this disease than males. The explanation is probably to be found in the fact of the places of election in the female subject, namely, the breasts and the uterus. The explanation is the vicissitudes entailed by maternity. It is a well attested fact that in breast carcinoma in women we often have an antecedent history of mastitis. The tendency to malignant changes in the cervix which has been the victim of laceration as the result of parturition, is also understood; and it is probable that corporeal disease of epithelial types, as well as other forms of malignant change, result from the same cause. The relative frequency of the disease in the sexes is estimated by some writers at about six cases in the female to one in the male. Taking the reports of the Registrar-General of England again in illustration, for three years, 1878 to 1880 inclusive, the deaths from cancer among females amounted in the aggregate to 25,890; while among males there were 12,851. It is thought by some writers that the greater the fecundity of the female the greater is the liability to cancer.

It is a well understood fact, as before quoted from Mr. Snow, that diminution or loss of function in certain organs in consequence of advancing age, seems to have a definite causative relation in the production of cancer. With reference to the various traumatic causes of carcinoma outside of those connected

with procreation in the female, we have the various causes of irritation, ragged teeth, vicious habits which exercise a deteriorating influence on the epithelial lining of the buccal surface, syphilis, tuberculosis and various other conditions. So commonly is phimosis associated with cancer of the penis, that it has been considered as one of the prime factors in its causation. Its *modus operandi* is supposed to be the retention of secretion, its decomposition and the balanitis following it as the result of a chemical irritation. In the rectum we often have cancerous degeneration following hemorrhoids, fistula, syphilis and other conditions which produce prolonged irritation in this part of the alimentary tract.

The pain of carcinoma is never sufficiently characteristic to be relied upon as a positive symptom, because of the fact that the situation of the disease often gives in its expressions of pain the nature of the tissue involved, as, for example, the subperiosteal sarcomas of the long bones; the pain is rheumatic in character, at times acute and often involves the whole limb, and, as we know, is often mistaken for rheumatism. The lancinating pains of hard carcinoma of the breast are often associated with that condition, but are not its invariable accompaniment, and may be produced by simple chronic abscess of the breast, simple adenoma, etc.

Again, the gross appearances of tumors when very deeply placed in the body structures are not to be relied upon. The weight of growths involving the breast or the testis often conveys a very correct idea of its nature. Where these neoplasms are so situated as to be beyond the application of this test, it is of no value. The consistency of a growth often bears very significant testimony as to its character. In the thin flabby breast it is often possible to make a very positive diagnosis as to the character of the new growth by palpation. In the fat full organ, however, we may be easily misled. The old text-book symptom of retraction of the nipple in connection with cicatrizing carcinoma, is always a significant indication when present, but unfortunately it is not present in those cases of malignant disease seated deeply in the gland, and oftentimes not apparent where the growth is superficial and near its nipple. Fixation of the skin over the tumor, with discoloration and puckering, should always excite suspicion.

The mobility is another very important consideration, and when taken in connection with the other clinical conditions, may throw a good deal of light on the character of the tumor with which we have to deal. The well known disposition of all carcinomas, with the exception of the sarcomatous varieties, secondarily involving the lymphatics in the known channels of absorption, usually stamps the primary disease as malignant. As a rule, we know sarcoma does not manifest this tendency. In estimating the value of this lymphatic involvement, we should always bear in mind that such a condition may arise from simple inflammatory conditions, or be associated with syphilis or tuberculosis; we should remember, as well, that all these conditions may be associated with malignancy.

To briefly recapitulate before taking up the consideration of special regions of the body, we can not do better than follow the suggestions of Mr. Snow. We believe in the local origin of the disease; we believe in traumatism of some character as a cause; we believe to a limited extent in the influence of heredity; we believe that age in either sex is one of the most important factors for our consideration in determining as to the specific characteristics of the growth, as to its innocence or malignancy. From what has already been said, it is evident that age wields a wider influence in a diagnostic way than any other of the cited conditions which lead to malignancy. The enlarged gland in the neck or groin of a boy at 15, or an enlargement of the breast or thyroid gland in a girl of the same age, excites no special apprehension, because of the age of the individual; but carry these subjects thirty years farther along in their life journey, and these abnormal enlargements at once excite our suspicion.

The epitheliomatous variety of carcinoma, as we know, has a predilection for the mucous surfaces and outlets of the body. It is prone to implant itself upon many of the non-malignant diseases of the skin, such as warts, moles, simple ulcers, eczema of the nipple, as in Paget's disease, old cicatrices, etc. If we are to believe the teachings of Mr. Jonathan Hutchinson in an article on the origin of tumors, namely, that in every new growth there is a pre-cancerous stage, the onus of responsibility of those who assume to diagnose and dictate the treatment to be followed in these cases is indeed, one of great responsibility. Epithelial cancer is rarely seen under 40 years of age, oftener after 50. "In males the most common seats of the disease are the lower lip, some portions of the face, and the glans penis; in females, the uterus, the vulva, the anus and the face."—(Agnew). Again quoting from the same author, "it begins in various ways, sometimes as an indurated nodule, crack or fissure, and at other times in a papillary or wart-like prominence in the skin or mucous membrane. When the disease commences in the form of a hard mass or nodule, it is usually charged with great malignancy, passing soon into ulceration and invading the surrounding parts with great rapidity."

It is a well-known characteristic of epithelioma that when seated on the surface of the skin, its tendency is to extend superficially and not deeply, and it may exist for a long time without involving the subject in the systemic wreck which so rapidly follows its advancement upon the mucous surfaces. The explanation of this difference in the behavior of this growth in the two situations, as given by pathologists, is the resistance offered by the dense character of the tegumentary structures underlying the neoplasms. We have no doubt that this form of malignant disease may have been in existence for a long time, often a number of years, without any systemic involvement, and we also all know that so soon as the nearest lymphatic channels manifest by their enlargement that the disease has commenced its migration, that in the majority of instances the surgeon's knife shortens rather than lengthens life.

There is, perhaps no part of the body where early diagnosis would seem as easily obtainable as in the tongue, when attacked by malignant disease. And yet we often see epithelioma of the tongue which has been overlooked or disregarded until it has attained dimensions which preclude the possibility of relief at the hands of the surgeon. Within ten days a man, 74 years of age, applied to me, with an epitheliomatous tongue, which involved nearly two-thirds of its lateral surface; he told me he first noticed it six weeks before. It is probable that it had been in existence for several months.

Mr. Butlin in his recent work on "Operative Surgery of Malignant Disease" reiterates practically the teachings of Mr. Jonathan Hutchinson, in speaking of the pre-cancerous stage of diseases of the tongue, in the following very forcible language: "It is very important to bear in mind, not only for the purpose of more certain diagnosis, but in the prophylactic treatment, that carcinoma of the tongue is, in a large number of instances, preceded by some chronic affection of the surface of the tongue. Chronic superficial glossitis or one of the several conditions which are due to it, such as ichthyosis, psoriasis, leucoma."

The physical characteristics and the clinical behavior of epithelioma elsewhere in the cavity of the mouth, in the pharynx, or on the tonsils, or at the inferior outlet of the alimentary canal, or on the male or female genitalia, are practically the same and need no further consideration, except in connection with the uterus. Any woman who has attained to the age of cancerous susceptibility, who suffers from a menorrhagia or metrorrhagia, should undergo an immediate and thorough physical examination, and if she shall have passed the climacteric and should again bleed from the mucous surfaces of the pelvis, we are led at once to believe that malignancy is its cause.

The female breast furnishes more examples of malignant growths than any other organ of the body. The malignant tumors which are found in this situation are the different varieties of sarcoma and the hard and soft carcinoma, carcinoma being the more common. Sarcoma of the breast is usually a disease of early or mature life; it occurs somewhere between the ages of 20 and 35; more common among married than among unmarried women. The tumor is usually single, occurs in the breast at a time which we have been pleased to style, according to historical limitations, the pre-cancerous period of woman's life, grows with considerable rapidity, is moderately hard, is often lobulated in harmony with the conformation of the gland, shows little tendency to adhere to the skin or to ulcerate and break down, not often associated with much pain, and showing little disposition to involve the tributary lymphatics. This, briefly, is the description of sarcoma as ordinarily encountered.

The hard carcinoma, or scirrhus carcinoma, so-called, appears usually after the fortieth year of life. Prof. Gross, the younger, in his analysis of 642 cases found the average age to be 48, and stated that the disease was not at all uncommon after 60 or 65. It is more common among married women, and women who have borne children furnish relatively the larger number of cases of this form of cancer. It does not show the disposition to encapsulation that is found in sarcoma, but tends to disseminate itself through all the structures of the gland. In many of the circumscribed forms the tumor conveys the impression to the finger of being very hard; it is often irregular and knobby, and is usually tender to the touch, and often associated with sharp, lancinating, and at times agonizing pains radiating from the breast all over the affected side. As the disease advances the skin becomes adherent, puckered on the surface, soon becomes discolored and after a time undergoes ulceration; the nipple becomes retracted, sometimes early, sometimes at a late period, sometimes not at all.

In the soft or encephaloid variety of carcinoma we have a growth whose life history is much more rapid; it runs a very swift course; it shows a disposition to skin adhesion, ulceration, early fungosities appear, systemic infection takes place, and in many cases a few months are sufficient to destroy the life of its unfortunate possessor. The behavior of soft carcinoma of the breast is very like that of sarcoma, but they differ materially in their anatomic relations with the structures in which they are placed; soft carcinoma infiltrates the gland, and sarcoma, as a rule, is encapsulated, and in palpating the breast so diseased it is often possible to distinguish between the two conditions.

The sarcoma and soft carcinoma when situated in other portions of the body than the breast, differs little in its clinical behavior, with the exception, perhaps, of the subperiosteal forms of sarcoma as found in the long bones. I have in mind a woman age 28, who had a subperiosteal sarcoma of the lower end of the femur, whose lower extremity I removed at the hip joint shortly after diagnosis became certain; there was at the time no appearance of any lymphatic involvement in any of the tributary channels. She made a rapid convalescence from the amputation. Two months later I removed all of the muscular covering of the os innominatum on the amputated side, which was the seat of extensive infiltration, and about three months later she died of hemiplegia, presumably from metastasis to the brain.

In another case of periosteal sarcoma of the ulna, an amputation at the elbow joint was followed in about five months by a paraplegia, which was brought about by a new focus of the disease in the brachial enlargement of the cord, and which rapidly became so extensive that it destroyed the laminæ of the lower cervical and upper dorsal vertebræ, and a tumor the size of the fist developed upon the dorsal aspect of the spine in that situation.

In a third case of sarcoma of the lower third of the femur in a child 14 years of age, amputation at the hip joint was made in May; she died in September of metastatic deposits in the left upper jaw in the diplöic structure of the calvareum and probably within the skull. These three sad cases demonstrate the atrocious virulence of this form of malignant disease.

It seems a cruel distortion of the munificent plan of the Almighty, when this disease finds its victims from among those of the human family least able by age or vitality to withstand it. Such, nevertheless, is frequently seen.

I have recently been very much interested in the recital of the clinical history of two cases of rapidly growing sarcoma of the kidney in very young children, reported by Dr. Robert Abbe, of New York. In his first case the tumor had attained to the weight of two and one-fourth pounds when the child had attained its second year of life. In the second case, it had reached seven and one-half pounds and the child was but one year and two months of age. A year ago this past winter, I removed a similar tumor from a child of 5, and the tumor weighed nearly nine pounds. My result, I am unhappy to say, was not as successful as Dr. Abbe's.

Malignant disease of the adult kidney is often impossible to determine, because of the deep situation of the organ and the uncertainty of its clinical manifestation. The microscopic clinician for years has been assiduously in pursuit of that *ignis fatuus*, the

cancer cell, in the human urine, with the view of demonstrating the contamination of that fluid by the presence of a neoplasm along the track through which it travels in its exit from the body. The perfected modern cystoscope has done much to aid us in arriving at definite conclusions as to the part of the genito-urinary tract involved, by eliminating the bladder and urethra from being responsible for the physical characteristics of the abnormal secretion. I believe the majority of all thinking students of surgical pathology are as enthusiastically imbued with the idea that *the* specific microbe will soon be revealed to us, as was the historical Micawber that something would turn up to *his* advantage.

Prof. Stockton, of the University of Buffalo, in a clinical lecture delivered in 1892, laid great stress on the diminution of urea in cases of abdominal carcinoma. He says: "I have seen it in cancerous disease of the kidneys, pancreas, liver, mesenteric glands, omentum, colon and other organs. The diminution of urea also holds good to a certain extent in reference to cancerous disease of other parts of the body, but it is especially important as a sign in cancer of the abdominal organs." Gastric and intestinal carcinoma are not to be positively diagnosed without a palpable tumor, and oftentimes only by ocular demonstration after opening the abdominal cavity. Until the later stages the clinical history is entirely subjective. The absence of free hydrochloric acid in the gastric juice is considered strong presumptive evidence of cancer in this organ.

THE NECESSITY OF EARLY SURGICAL INTERFERENCE IN MALIGNANT GROWTHS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held in San Francisco, June 5-8, 1894.

BY R. A. McLEAN, M.D.
SAN FRANCISCO, CAL.

The fact of malignancy having been established in a suspicious growth, the question of its complete removal demands the immediate attention of the surgeon. Regarded from a purely practical standpoint, there can be no doubt of the superiority of extirpation by the knife over all other procedures, yet all candid surgeons will admit that many instances of recurrence have been met with after operations, which seemed at the time to be extensive enough to include all the diseased tissues. This tendency to recurrence after removal of malignant growths by operation, has influenced the laity, and not a small part of the profession, to delay radical treatment until the case has become hopeless.

It is the purpose of this paper briefly to point out the causes of failure of operative treatment, and to indicate, in a general way, the means by which a large proportion of cases of malignant disease may be permanently cured.

First in importance as a cause of failure of operative treatment in the majority of cases, is the large development of the growth when the surgeon is first consulted. In the carcinomata the surrounding tissues and neighboring lymphatics have already become deeply infiltrated; in the sarcomata, metastasis to distant parts has already taken place.

In not a few cases, ulceration has occurred; and to the exhausting effects of the discharges is added the presence of septicemia. Only disaster can result from interference in such cases; and should the patient survive an attempt at extirpation he will certainly succumb later to recurrence. The mistake is frequently made by the medical man first consulted at the comparatively early stage of the disease, in not insisting upon radical treatment. It is usually the family physician who is first called upon to examine and prescribe for the suspicious growth. Upon him rests the grave responsibility in all such cases of deciding the question of probable malignancy. The temporizing policy usually pursued allows the disease to develop until operative treatment is inadmissible. The physician who is first consulted in a case of tumor or ulcer should promptly apply the usual tests to settle the question of malignancy. A broad consideration of the clinical features of the case will usually suffice to exclude the various non-malignant tumors and ulcers. In the majority of suspected cases the only element of doubt that need enter into consideration is the difficulty, in certain cases, of differentiating between malignancy, tuberculosis and syphilis. To reduce the question of doubt to still more narrow limits, it is only important to differentiate between malignancy and syphilis. A four weeks' course of mercury with arsenic and iodid of potassium will be a sufficient test. The question of tuberculosis is not important as governing the treatment, for extirpation is the most satisfactory method of dealing with all such tubercular manifestations as could cause suspicion of malignancy. A careful study of a suspected case for one month should be ample time to eliminate all doubt as to the proper course of treatment. The patient should be urged to undergo a radical operation without delay. If this course were followed, instead of the policy of delay, the surgeon could show statistics in which failure would be as uncommon as success has been heretofore. It is probable that cancer is increasing in frequency. It is to the family physician that the patient first goes for advice, and he should be alive to the importance of early recognition of malignancy in suspicious ulcerations and tumors. One cause of delay and loss of valuable time is the attempt to label the suspected growth with its pathologic title. Malignancy being probable, it should make no difference in treatment whether the case be one of scirrhus, or epithelial cancer, or one of the various forms of sarcoma. The surgeon has before him merely the question of extirpation of a growth which, if left to itself, will certainly destroy life.

In the early stage of malignant growths a relatively small portion only of the region or organ affected need be removed. The general health has not yet been affected and the patient rapidly recovers from a comparatively slight operation.

It should, therefore, be the first duty of the surgeon to insist upon early operation. Unfortunately, however, it is not until the growth has attained considerable proportions that the patient presents himself for operative treatment, and the surgeon is confronted with the task of removing the disease without sacrificing the life of the patient. It is probably the experience of most surgeons that cases of malignant disease do not apply for operation until the growth has involved a large part of the part or organ first attacked, and usually the neighboring lymphatics are extensively affected. In such cases it is unwise to attempt extirpation.

The following remarks are to be regarded as applying only to external malignant growths.

An early operation may be defined as one undertaken before any considerable extent of the part or organ originally attacked has been invaded. In carcinoma the lymphatics have not yet become affected, or only those in the immediate vicinity of the growth. The general health has not suffered. In sarcomata, no symptoms indicating metastasis have yet appeared.

It is in such cases that the surgeon may operate with a certainty of eradicating the disease. We now come to the most difficult part of the problem. How shall we decide in each case how far to carry the knife beyond the evidently diseased district? Instead of attempting to remove as little of the surrounding tissue as possible, it should be the rule to remove as much of the neighboring parts as can be done with safety, and with due regard for preservation of appearance and function. The direction and extent of the incisions will depend upon the course and proximity of the lymph vessels and glands, all of which should be removed with the overlying skin together with all of the connective tissue in which they are embedded.

The surgeon will never have cause to regret extensive abscission, not only of the tissues evidently diseased, but also of such parts as lie in the path of extension.

The experienced touch, carefully and deliberately practiced about the vicinity of the growth, with due consideration of the direction of the lymph vessels leading from it to the nearest lymphatic glands, will enable the surgeon to plan his incisions so that they will fall altogether beyond the probable limits of the infiltration.

After the growth has been removed and the vessels secured, the surface of the wound and its vicinity should be systematically palpated in order to detect any outlying indurated tissue or diseased lymph gland. This must be done with the utmost thoroughness, and the touch can be materially assisted by the use of a powerful hand lens. Infiltrated lymph vessels will by this expedient be detected which would not be evident to the touch.

In dealing with malignancy occurring in the vicinity of the bones of the skull, as much of the entire thickness of the bone should be removed as has been affected by the erosion. This should also be done if the overlying periosteum be infiltrated.

In carcinoma of the tongue or lower lip, the inferior maxilla should be removed in part with the growth, if the extension of the disease has caused erosion of the bone itself, or infiltration of the periosteum.

In dealing with sarcoma of the extremities, amputation should be the invariable rule. In these cases the conservative surgeon will advise operation only in recent examples, and before the occurrence of metastasis has placed the patient beyond the probability of cure. The amputation should be done through the continuity of the bone upon the proximal side of the articulation next above the growth. By this method alone can there be certainty of including all diseased tissue.

As an example of the advantages of a thorough removal of all neighboring tissue in carcinoma, I venture to present the following case:

Joel Simpson, 33 years of age, entered the City and County Hospital in January, 1883, with an extensive ulcerating epithelioma of the entire lower lip and the greater part of the right half of the upper lip and right cheek. The surrounding tissues were greatly thickened and infiltrated, and the lymph glands and both sides of the neck were enlarged. His general health was good. He stated that a small lump appeared first upon the right side of the lower lip about eight months before, caused, he thought, by smoking a clay pipe. The outer surface of the body of the inferior maxilla was eroded and the incisor teeth were loose. It was decided to extirpate the diseased mass including the body of the lower jaw.

Both external carotids and superior thyroids were first ligated. The growth was then circumscribed by an incision, beginning on the left side near the angle of the mouth, through the lower lip down the left side of the neck in an oblique direction to the larynx, where it was joined by a second incision beginning near the median line of the upper lip on the right side, and carried in a curved direction upward and outward through the right cheek and then downward and inward along the neck to the larynx.

The body of the lower jaw was then sawn through on each side near the angle, and the entire mass, including the submaxillary glands and enlarged lymph glands, were dissected from the inferior surface of the tongue, the pharynx and larynx. A few outlying enlarged glands were then removed. The surface of the wound seemed to be perfectly free from disease, but it was thought best to defer any attempt to close it by a plastic operation. In order to lessen the suppurating surface remaining, the edges of the mucous membrane and skin were brought together by sutures where the incisions passed through the lips and cheeks. The remaining wound was dressed with borated vaselin spread on lint, over which was applied an ample absorbent dressing.

The patient lost but little blood during the operation. In six weeks the wound had almost completely cicatrized. A plastic operation was then done to remedy the deformity, and difficulty in swallowing and speaking, caused by the protrusion of the tongue and absence of the lower lip and right side of the cheek. After dissecting off the cicatricial tissue from the edges of the cheeks and surface of the original wound, the tongue was freed from its adhesions anteriorly. A flap of skin and connective tissue was then lifted from the right side of the base of the neck and shoulder, turned upon its pedicle and approximated to the raw surface below the line of the mouth. The upper margin of the flap served the purpose of the lower lip, and its extremity was attached by sutures to the edge of the original incision in the left side of the neck.

In about four weeks the flap had united, when its pedicle was severed and adjusted to the freshened edges of the incision in the right side of the cheek and neck.

In conclusion, the following propositions may be offered:

1. All cases of suspected malignant growths should be treated surgically in the early stages of their development according to the rules of procedure above outlined.

2. Excision should be done in all cases of malignant growths, however extensive, in which the general health has not been seriously impaired, or extensive lymphatic involvement or metastasis have not occurred.

3. Operation should be refused in cases of recurrent or primary malignancy, in which the general health is so much impaired as to render an extensive operation a serious risk to life; in all cases of extensive ulceration and infiltration of lymph vessels and glands; and in all cases of sarcoma in which there is a probability of metastasis having already occurred.

THE VALUE OF CAUSTICS IN THE TREATMENT OF MALIGNANT DISEASES.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association held at San Francisco, June 5–8, 1894.

BY JOHN PARMENTER, M.D.

BUFFALO N.Y.

The advocates of caustics in the treatment of malignant growths have made many claims regarding the method of action and the results to be attained from the employment of the same. Prominent among the advantages claimed for caustics is the one that after their use, recurrence of the malignant growth is less frequent. An assertion like the above is easy to make, but difficult to prove. It is equally difficult to disprove, and correct conclusions can only be made by careful and logical interpretation of the statistics of a large and well observed number of cases. Apropos of this, space permits only the remark that the general consensus of opinion among surgeons to-day is to the effect that caustics give no more exemption from recurrence than does the knife.

Another claim is to the effect that the value of caustics is due to a selective action, whereby only malignant tissue is destroyed by the agent employed. This erroneous idea naturally arose from the fact that caustics destroy malignant sooner than healthy tissue, the latter having more resistance than the former, and hence the appearance of selective action. Such a caustic would be ideal, and when it is found, perhaps the question of the treatment of malignant disease will be forever solved. That we have no such drug or combination of drugs, experience constantly reminds us, and therefore this claim must be declared unfounded.

Still another virtue attributed to caustics is their power to reduce enlarged lymphatics adjacent to the seat of disease. That this result is attained sooner and more completely than after extirpation with the knife, of the disease causing them, is certainly not the case. It, however, often happens that the removal of a slough, due to the application of some caustic, is followed by a decrease in the size, tenderness and other signs of inflammation of the adjacent lymph glands. This, however, occurs very commonly where no caustic has been employed and is probably due to the fact that better drainage results from the removal of the slough, and hence the secretions no longer pent up, cease to infect the glands so actively.

The value of caustics, then, is not to be found along the lines advanced by their advocates, but must be sought for in other directions. The less we know about the method of action of an agent, the more carefully must we observe the various phases of the action itself if we would learn to use properly and safely such agent, and experience has taught us that the value of caustics lies in a combination of two conditions, viz, the use of a proper caustic, and its intelligent application in suitable cases. What is a proper caustic, and which are suitable cases? A proper caustic is one which effects complete destruction and removal of the diseased tissue. Many substances classed as escharotics—such as silver nitrate, carbolic acid, zinc sulphate, and the like—are not sufficiently caustic and should not be used. They only serve to irritate the diseased tissue, stimulate the lymphatics and disseminate the infection, thus making a bad matter worse. So when caustics are used, they should be those whose action is both rapid and thorough. Among these are the actual cautery, sulphuric acid, Vienna paste, Bougard's paste and zinc chlorid.

The actual cautery is a clean speedy agent for the destruction of malignant tissue, but it has seemed to me, in the few cases in which it was used, that there was quicker recurrence than was the case after using, say, Bougard's or Vienna paste.

Sulphuric acid is an active escharotic, but exceedingly painful and but little used now for this reason.

The alkalin caustics are among our most efficient agents and in some form or another are very commonly employed. The same is true of zinc chlorid in its various combinations. This agent is the principal ingredient of Bougard's formula, which according to Lewis (*Medical Record*, Feb. 13, 1892), "is by all odds the best (escharotic) we have at present." Its composition is as follows:

Wheat flour	60 grams.
Starch	60 "
Arsenic	1 "
Cinnabar	5 "
Sal ammonia	5 "
Corrosive sublimate	0.50 centigrams.
Sol. of chlorid of zinc at 52	245 grams.

In its preparation, Lewis suggests that each of the first six substances be separately reduced to a fine powder, then mixed in a mortar (glass or china) and upon the whole is poured the solution of zinc chlorid. The mixture is rapidly stirred to prevent the formation of lumps. A paste results, of which a thick layer is spread upon cotton and left in contact with the diseased tissue for twenty-four hours (caustic potash having been first applied to remove the outer layers of the diseased tissue and thus bring the caustic into quicker and closer contact with the remaining parts). After this time, warm poultices are applied to bring away the slough. This requires from three to nine days, according to the case. When the slough has separated, the wound may be dressed with some stimulating antiseptic ointment.

The space at my command does not permit me to describe the various other caustics and their method of application, so I have given a few details regarding Bougard's paste as fairly typical of the whole class of escharotics.

Whatever escharotic is used, common sense must be exercised in applying it. It must be proportionate in power to the necessities of the case; it must not be applied over too great an extent of surface at one time, one to two square inches being usually enough for a single application; it must be applied to all justly suspicious tissue, and the pain caused by it mitigated in all cases so far as possible. Especially is this latter important in persons enfeebled by age or disease, to whom loss of sleep and appetite are a serious matter. In short, the value of caustics depends in no small measure upon the intelligent way in which they are used and here, as elsewhere, the abuse of these agents leads to negative or disastrous consequences.

And now regarding the question, Which are suitable cases? In speaking of the proper kind of caustic the remark was made that it should possess the property of effecting complete destruction and removal of diseased tissue. It is equally important for us to select such cases as, from their anatomic situation, freedom from general infection, or infection of adjacent lymph glands, make it possible for an efficient caustic to exert its full influence. Without taking

the time and space to specify the cases which would naturally be excluded by such selection, we may say in general that malignant disease affecting bone, tissues intimately adherent to important structures (large vessels, etc.,) internal organs, or glands like the thyroid, are not suitable for treatment by caustics, viewed either from the standpoint of theory or of experience.

What of malignant disease of the breast, cervix and corpus uteri, tongue, tonsil, eyelids, rectum, or of the genital organs, and other similar and common sites of cancer? Experience again teaches us the futility and even positive danger of employing escharotics in the great majority of such cases. Now and then a caustic has cured a cancer of the breast or of some other part of the body, where the course of the disease is usually rapidly fatal; but this is most exceptional. Vastly more often their use results in increased suffering for the patient and an aggravation of the disease. This narrows the field down to cancer of the skin, the lip and the external ear. In other words, cancer usually limited in extent and easily accessible (two very advantageous conditions for the application of caustic). Lewis puts these cases in a distinct class, claiming that if taken early 95 per cent. should be cured, and in this statement the majority of surgeons will probably concur. When the time comes that surgeons shall have learned to properly select their cases, the statistics of caustic treatment will unquestionably show a decided and encouraging improvement. To-day it is to be feared that many surgeons have obtained indifferent results, due to obvious causes, such as late diagnosis, inefficient cauterization, poor technique and the like. This should change with time. Improvement in every way should follow. New agents more potent and of wider applicability may be found and used. Finally, even the long-awaited specific, in caustic form, may come to rid mankind of this terrible scourge.

The foregoing remarks seem to justify the following conclusions:

1. The value of caustics in the treatment of malignant disease depends upon the use of proper caustics and their intelligent application in suitable cases.

2. A proper caustic is one which completely destroys and removes the malignant tissue.

3. Mild caustics are inefficient and dangerous, and therefore to be avoided.

4. Bougard's paste is the most generally useful escharotic.

5. Proper technique in application accentuates the value of caustics.

6. The suitable cases are those which have a limited extent and are easily accessible, or in other words, cancer of the skin, lip and external ear, in their incipient stages.

7. The prognosis should be most excellent, cure resulting in the vast majority of cases when treatment is early and thorough.

Washington State Board of Examiners.—Dr. E. Van Zandt, of New Whatcom; Dr. Wm. W. Misner, of Tacoma; and Dr. John E. Bingham, of Walla Walla, have recently been appointed on the Washington State Board of Medical Examiners.

ON THE USE OF CAUSTICS IN MALIGNANT DISEASE.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY L. DUNCAN BULKLEY, A.M., M.D.
NEW YORK.

As is well known, the treatment of malignant disease by caustics has been practiced very largely by those who are known as "empirics and quacks," much to the discredit of the medical profession and often to the injury of patients. But that there is somewhat of a foundation for their use in the success which may often attend them is certain, and it behooves the profession to correctly understand and profit by the experience which has been gained in this direction.

That there is a foundation in science for this method of treatment, there can be no doubt to any one who has studied the subject and who has had experience in the same. On the other hand, that harm may be done by their injudicious use is also equally evident. It will be our object to consider very briefly the indications for the use of caustics in malignant disease, the method of their employment, and the cautions to be observed in regard to the same.

To appreciate rightly their value, some consideration must be had in regard to the nature of the disease which it is sought to remove. This has been very largely considered by those who have preceded me in this discussion, and I will not enter into the pathology or etiology of malignant disease, but will only briefly state a few propositions.

The success of the treatment must entirely depend upon the localization of the disease. If the malignant elements are so situated that they can be absolutely and thoroughly destroyed, even to the very deepest ramifications, there is no reason why the caustic which reaches to every part of the disease and destroys its life may not succeed in eradicating the same; consequently, it is in the earlier stages of malignant disease that caustics find their value; and to be of successful employment they must be so used that the destruction shall be absolute and complete. It is needless to say that when the adjoining glands have become at all affected, and when metastasis has occurred to other organs, it is worse than useless to attempt the destruction of the local trouble alone by caustics or other means. Caustics are therefore largely applicable during the formative period, and when one can fairly judge of the exact extent of the morbid process. A very large share of the reputation or celebrity which has come to certain cancer quacks is derived from results obtained under such conditions; for it is very common for patients, when the diagnosis of epithelioma or local cancer has been made, to go at once to them, from fear of the knife, and a thorough application of the caustic made by them will often prove completely successful; and undoubtedly also, as I have personally known to be the case, many other conditions are brought to them which are not cancer, which are easily removed and thus add to their reputation.

I will speak first in regard to the treatment of early epithelioma, especially on exposed regions and particularly on the face. As is well known, these often begin as very trivial affairs, from a mole or wart, or sebaceous concretion, which has been pricked or irritated until a scab forms, and then, the slight

ulceration, having failed to heal, takes on epitheliomatous degeneration.

In the early stages of the disease, what is known as Marsden's paste will often prove a most valuable application, and one which can be successfully applied, if the rules in regard to its use are carefully carried out. This paste is composed of arsenious acid and powdered gum acacia. I generally keep the two ingredients separate and mix them at the time of application. A small portion of each is taken, in about equal parts by weight, or fully twice as much of the powdered gum by measure, and thoroughly mixed in a saucer; a drop or two of water is then added, and they are rubbed together until a thick tenacious paste is made. This is then carefully laid over the affected area to the depth, perhaps, of an eighth of an inch in thickness, after having carefully removed any adherent crusts. Before the paste dries, a little absorbent cotton is gently pressed upon it, the edges being tucked in so that the application covers the area occupied by the diseased surface. The layer of cotton should be very thin, perhaps also an eighth of an inch in thickness when gently pressed down. Ordinarily, I do not care to make such an application over a space exceeding one inch in diameter either way. But others have used it safely over several square inches at a time.

After a few minutes the paste will harden, and no dressing is required over the cotton until later; at first there is not much pain but within a few hours there is a drawing sensation, and the parts begin to feel uncomfortable; some hours later a severe burning pain sets in which may prevent sleep, the first night. About twelve hours after the application of the paste, a flaxseed poultice is applied, quite warm, the flaxseed being enclosed in a small bag with its mouth open, so that the poultice comes directly over the cotton, without any intervening substance between. It is well to cover the poultice with oiled silk, in order to keep in the heat and moisture. It may be changed every two or three hours.

When the poultices are changed, care should be exercised not to disturb the original cotton, the idea being that by means of the moisture of the poultices the cotton absorbs the arsenic beneath it, and there is a prolonged, gently acting influence of the drug over the part for some days.

In a short period, within a day or two after the application of the poultices, the affected part has become quite swollen, and a distinct border of demarkation can be seen in the form of a slight yellow line which soon breaks down, forming a furrow aronnd the diseased tissue. The time occupied for the complete formation and separation of the slough varies greatly in different cases according to the extent or depth of the epithelioma. In superficial growths it may separate in a week, but where the disease is of some depth the slough will sometimes adhere for two or three weeks. It is well not to interfere too much with the process of destruction, but to let the suppuration completely detach the dead portion from the surrounding tissue; but when it adheres too long any shreds may be clipped off with the scissors. It is understood that the poultices are to be continued for some days, or for a week or two. The wound heals comparatively rapidly after the separation of the slough; I do not have it washed or cleansed in any way.

If enough of the arsenic paste has been laid upon it, and the cotton allowed to adhere, a single application will generally be sufficient to eradicate most of the smaller epitheliomata; but if there should be signs of a portion of the disease left at any point, a second or even a third application of the paste may be necessary. Sometimes after the slough has separated, the wound will heal very kindly and quickly under the use of a mild zinc ointment; but I think the best results have been obtained when the poultices are continued until complete cicatrization had taken place.

If the arsenic paste has been applied strong enough there is really no danger of poisoning from the drug, for it so thoroughly destroys everything before it that absorption can not take place; the only danger lies in using it with too light a hand. There may be considerable pain during the first twenty-four hours after the application of the poultice and thus necessitate the use of opiates; but again the pain is often very slight. The cicatrix resulting from the healing with this treatment is often very small and supple. In many cases in which I have employed it, a single application has proved entirely successful, and there has been no return of the disease.

Thus far I have spoken only of the treatment of rather small and early phases of epithelioma; but this method of destruction may also be employed over larger areas than have been mentioned, which may be taken piecemeal if necessary.

Larger and deeper malignant growths have also been successfully removed by many, but the difficulties attending this method of treatment are often quite great. Cancer of the breast is constantly attacked both by empirics and by many in the regular profession, by the deeply acting caustics, but the pain attending this procedure is often very excessive.

Chlorid of zinc will eat its way through any amount of tissue and is relatively harmless in regard to any toxic effects. When once used this should be pressed on fearlessly, by one application after another, until the base of the tumor is reached and all is destroyed.

A valuable paste of chlorid of zinc is now used a good deal, under the name of Bougard's paste, composed as follows:

℞	Farinæ tritici (wheat flour)	
	Amyli	aa ʒi
	Acid. arsenios. pulv.	grs. viij
	Hydrarg. sulph. rub	ʒii
	Ammon, mur	ʒii
	Hydrarg. bichlor. corros.	grs. iv
	Zinci chlorid. cryst	ʒi
	Aquæ fervid	ʒiss
	M.	

This is spread directly upon the surface, or thickly on a bit of linen, and laid on, and left on for twenty-four hours or more. The application causes considerable pain. After removal of the paste the parts are treated by a simple ointment or water dressing, the slough separates, and if there is still some hard tissue the application should be repeated.

Caustic potash is also another destructive agent of great value in many cases, but is more apt to be followed by unpleasant cicatrization. With these three caustics; arsenic, chlorid of zinc and caustic potash, I believe that all can be accomplished which is possible with such means in malignant growths.

A few words may be added in regard to what should not be done in the treatment of this class of affections:

It is useless and worse than useless to attempt their destruction or removal by any mild means, for any

caustic agent which fails of utter destruction and removal of diseased tissue will certainly contribute to its growth. A most earnest protest should be raised against the practice, far too common, of touching malignant growths with "nitrate of silver." This is a very superficially acting caustic, and is utterly incapable of producing any great destruction. It coagulates the albuminous substances in the tissue, and thus produces a bar against its further penetration. Multitudes of cases of epithelioma which in their beginning were very slight and relatively unimportant, have been goaded on, by repeated burnings with the "nitrate of silver stick," until they are even past all surgical relief. Nor should any of the caustics be employed except such as will thoroughly penetrate and destroy the mass.

Pyrogallic acid is often spoken of as a most valuable remedy in epithelioma, but its action is quite superficial and seldom will serve alone to eradicate the disease. It is, however, a very valuable adjunct after curetting, and seems to have some elective affinity for epithelial structures. In many instances I thoroughly scrape out small epitheliomata with a very small and fine curette, searching out even the smaller ramifications of the same, and then after the bleeding has been stopped by pressure, I fill the cavity with powdered pyrogallic acid, cover with cotton and allow the surface to heal, not disturbing the dressing. At the expiration of a week the dressing may be removed, and perfect cicatrization will be found. The resulting scar is often a little blackened by the pyrogallic acid, but the stain will pass off in a few weeks.

A few words may be added in conclusion in regard to the relative value of caustics and other measures in the treatment of malignant growths.

The aim in all treatment is to go entirely outside of every possible extension of the disease. It has been well shown that malignant growths extend along lymphatic channels, even to some distance beyond what appears to be the seat of the disease. Excision will undoubtedly eradicate, and that permanently, a large share of malignant growths. But far too often after excision they recur again in the site of the cicatrix. This has resulted simply from not removing all outlying processes of disease, and herein lies the danger from the knife.

If the operation is not radical enough to include every possible line or group of degenerated cells, the caustic will to a very large degree follow out these lines or channels, and by producing inflammation around, as Robinson[1] has shown, destroy their vitality. Another favorable feature in regard to the employment of caustics is that the destruction of tissue and skin cicatrization is much less than would be requisite in producing the same effect by the knife. It is really surprising what a relatively small scar may result from the destruction by complete cauterization of even a large mass of disease.

On the other hand, I by no means advocate the use of caustics to the exclusion of operative surgery, for in many instances the latter is preferable. In the instance of epithelioma of the lip, unless it is very superficial and small, I almost always advocate a surgical removal. About the eye-lids the knife will often give better results, and avoid danger to the contents of the orbit which might arise from misuse of the caustic. Within the cavity of the mouth, caustics are almost impossible of application. I am not myself at all inclined to use caustics in cancer of the breast, unless the lesion is superficial and relatively small. Localized sarcomata may often be removed advantageously by a caustic, but in a large share of instances it can not compete with the knife. In cancer of the internal organs, caustic treatment is entirely out of the question.

It will be seen, therefore, from what has been said, that I by no means seek to elevate the use of caustics in malignant growths above their true value; but I assert that their proper use has been neglected too much by the regular profession, for in many cases they have proved an adequate and desirable means of removing the trouble. They may often be employed satisfactorily in cases which, while suitable for the knife, can not be thus treated owing to the objections of the patient.

[1] International Journal of Surgery, July, 1892.

THE RADICAL CURE OF MALIGNANT TUMORS BY OPERATION.

Read in the Section on Surgery and Anatomy at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5–8, 1894.

BY J. H. WYTHE, M.D., LL.D.

PROFESSOR OF HISTOLOGY AND MICROSCOPY, COOPER MEDICAL COLLEGE, SAN FRANCISCO.

By the phrase, malignant tumor, both the profession and the laity distinguish any new growth which has a direct tendency to destroy life. Malignancy is shown by the rapid invasion of adjoining structures, the enlargement of neighboring lymph glands in which the same kind of tumor is soon produced, and by the formation of similar structures in distant organs from the transfer of morbid germs through the lymphatics and blood vessels. In one or all of these ways, a virulent morbid growth will be manifested, according to the time it has existed and the activity of its growth.

Innocent tumors may recur, as well as malignant ones, if they are insufficiently removed by the surgeon, but they are subject to operation, not on account of their destructive virulence, but for the relief of pain, inconvenience or disfigurement. Operations for the removal of malignant tumors may also be useful as palliative, when all expectation of cure has vanished.

Since Virchow, in 1863, established the classification of tumors according to their minute structure, their study has been greatly simplified, yet the terms benign and malignant, survivors of the old clinical method of study, are used as convenient expressions of the tendencies of new growths. The anatomic arrangement of tumors was the direct consequence of the announcement by Müller, in 1838, of the law which is the foundation of all our knowledge of new growths, viz: "That the tissue of which a tumor is composed has its type in the tissues of the animal body, either in the adult or embryonic condition." Since this law has been fully confirmed by microscopic observation, no one dreams of looking for a specific cancer cell.

The term, malignant, is now usually restricted to the sarcomata or carcinomata, the first originating in the embryonic connective tissue cell, and the other, according to the generally accepted views of Waldmeyer, beginning in the more fully formed epithelial cell. In each form, the cells have a tendency to run wild, and, instead of producing an

orderly normal structure, greatly multiply themselves and accumulate in masses. These masses project and infiltrate into neighboring parts, whose nutrition becomes impaired and whose mutual pressure leads to ulceration and degeneration. Then comes absorption and transfer of germ cells to distant parts, when all hope of cure must be abandoned.

The cure by removal of malignant tumors depends on the fact that first they are of local origin. If they can be removed at an early stage of growth, together with all the neighboring cells which have a morbid tendency, they may never recur. Perseverance in removal after successive recurrences in the same place has also been greatly rewarded. Paget refers to cases where the tendency to recur was exhausted after many successive operations. Such patients had unusual intelligence and courage, with perfect reliance upon their surgeon, and deserved success.

My own observation of cures effected by the removal of malignant tumors has been limited to cases occurring in private practice, yet is sufficient to establish a favorable judgment. In such operations, two general principles have been influential: 1, to operate early, or as soon as the new growth showed signs of activity or irritation; 2, to remove with the tumor, a large amount of neighboring tissue, especially if the tissue had similar minute structure to that in which the neoplasm began. Thus, in several cases of epithelioma of the lip, I have not trusted to the curette or cautery, but have excised the growth with considerable tissue on each side of it. In no case did the disease return. In one instance, where the cancerous growth had spread from the lip to the gums and alveolar process, the lower jaw was exsected and a new lip made by a plastic operation. Four years afterwards, the man died of delirium tremens with no sign of recurrence of the malignant growth.

In malignant tumors of the breast, I invariably remove the entire gland, as well as any affected glands in the axilla. Of eight cases, but two have recurred. One of these was a scirrhus cancer, whose removal was succeeded after some months by carcinoma of the liver. The other was a large sarcomatous tumor followed a year after removal by osteosarcoma of the thigh. After amputation it recurred again in the stump, with fatal result.

In February, 1891, I reported in the *Pacific Medical Journal*, a new method of hysterectomy by enucleating the inner and middle layers of the uterine wall. This operation commended itself to me on histologic grounds as a safe, easy and effective way of thoroughly removing an epithelial growth of the uterine cervix. Neither the peritoneum, or the uterine or ovarian arteries are disturbed by this method, but the new growth, together with the entire follicular layer in which such growths begin, and the muscular layer adjoining, are entirely removed. This is a more thorough operation than the ablation of a cone of tissue around the morbid neoplasm, as advised by some writers. In the *Medical News* of Feb. 10, 1894, Prof. Reyburn, of Washington, D. C., describes an operation somewhat similar, but in his case the entire uterus was stripped from the peritoneal layer. I leave a portion of the outer muscular layer, which contracts so as to prevent hemorrhage. Prof. Reyburn's case was perfectly successful, but he suggests that in a younger woman the ovarian arteries might require ligation. This would be quite unnecessary in my method, as sufficient uterine tissue is left to avoid opening the peritoneal cavity.

I have operated in this way upon three cases of epithelioma and one of sarcoma, confirmed by both clinical and microscopic examination, and with no recurrence. One of the patients has been under observation for six years, and as she had passed the menopause before the operation, the remnant of the uterus has atrophied to a mere nodule. In the other cases the menstrual function continues as aforetime.

This method of hysterectomy (for so it may really be termed) may be available in other gynecologic conditions, but it is referred to here as affording a practical and easy way of effecting a radical cure in a large class of malignant new growths if undertaken early, but which, if left long to themselves, or treated only by palliatives, are among the most distressing of maladies.

THE VALUE OF INOCULATIONS WITH SEPTIC OR TOXIC AGENTS IN THE TREATMENT OF MALIGNANT NEOPLASMS.

Read in the Section on Surgery and Anatomy, at the Forty-fifth Annual Meeting of the American Medical Association, held at San Francisco, June 5-8, 1894.

BY JOHN A. WYETH, M.D.

NEW YORK.

My first experience with the action of toxic or septic agents upon malignant neoplasms was in 1884. J. W. Phillips, an innkeeper of Gainesville, Texas, at that time (May 20, 1884) 33 years of age, was directed to me by Dr. Conson, his home physician. Four months before he had noticed a small lump in the wall of the abdomen on the right side, about four inches above Poupart's ligament, just where he had been struck some weeks previously by the end of a billiard cue. The tumor grew rapidly and enlarged in all directions, but was not painful. In the last few weeks he lost flesh considerably. History of specific urethritis ten years ago and sores on penis six years ago, but no symptoms of constitutional syphilitic infection followed. He had always been a vigorous and healthy subject.

When he came under my care the tumor in the wall of the abdomen was about four by six inches in measurement, and seemed deeply attached or glued to the muscles of the belly. Under anesthesia I found it impossible to make a thorough extirpation of the mass without sacrificing so much of the abdominal wall that the patient would have had an enormous ventral hernia and been incapacitated from any business.

I removed a large section from the tumor and packed the wound thus made.

The specimen was studied carefully under the microscope by Prof. Wm. H. Welsh, now of Johns Hopkins University; by Dr. Wm. L. Wardwell, a pupil of Conheim, and an excellent pathologist, and by myself. Each of us agreed that the tumor was a sarcoma, confirming the diagnosis which had been made from the history and gross appearance of the neoplasm.

I had read in a German journal, about that time, of three cases of sarcoma reported as cured by injections into the substance of the tumor of arsenious acid, and advised my patient to permit me to try it on him, which was done. I injected a small quantity every day for about ten days into various parts of the growth. The injections were quite painful and established a very severe degree of inflammation and suppuration, to such an extent that the patient begged the discontinuance of the treatment and it was abandoned. By this time his condition was very bad. I had no hope of his recovery. He was carried to Virginia, his native State, where for several weeks the process of suppuration continued, gradually ceasing until finally the tumor disappeared.

It is now ten years since he was treated, and there has been no recurrence of the growth. He is in excellent physical condition and I think he may be considered as cured.

The caustic action of the arsenic could not account

for the destruction of the tumor, for not more than one-twentieth of the mass was reached by the injections. The suppuration which ensued filled the inflamed area with shoals of streptococci and other septic products, and these destroyed the elements of the sarcoma.

There was no erysipelas in this case up to the time he left me, and I do not think the cocci of Fehleisen had anything to do with the cure. It was a positive case of sarcoma cured by the action of septic or toxic agents, the ordinary products of inflammation.

Shortly after this there occurred another remarkable case in the wards of Mt. Sinai Hospital:

A young girl was admitted on account of a sarcoma of the leg, for which an amputation was performed on the middle of the thigh. Several months later the growth recurred in the stump and Dr. Gerster removed the remaining portion of the extremity at the hip joint. A second recurrence took place in the line of amputation at the hip, and presented as it developed an extensive cauliflower-like mass, dirty, foul, granulating, and from which bleeding occurred at intervals. This patient was abandoned to die, but was accidentally inoculated with erysipelas in the stump. Large sloughing masses were cast off, the wound finally healed, all traces of the sarcoma disappeared, and she is now, more than five years after the attack of erysipelas, living and healthy with no sign of the terrible malady from which she so narrowly escaped, excepting the loss of the extremity.

A third case of large lympho-sarcoma of the neck in a man about 60 years of age in my service at Mt. Sinai Hospital in 1891, was accidentally inoculated with erysipelas, but perished in three days from the onslaught of the disease. When attacked he was in low condition, and died before any noticeable changes had occurred in the new formation.

The following case has been under my care since August, 1893:

J. J. L., 37 years of age, lawyer, of Pennsylvania, with excellent family and personal history. Two and one-half years ago a filled molar tooth in the right upper jaw began to ache, and the gum to swell. The nerve was killed by his dentist and this stopped the pain, but the swelling persisted and the tooth was extracted. Later the antrum was opened, and in August, 1893, I opened freely into this cavity and curetted it with Volkmann's spoon.

The presence of sarcoma of the upper jaw of this side was suspected, and Professor T. Mitchell Prudden, of New York, confirmed this diagnosis by the microscope.

Hoping to spare the patient the mutilation which the surgical removal of his jaw would cause, on Jan. 31, 1893, I inoculated him with the toxic products of erysipelas cultures. Under the influence of these injections the temperature would rise from 1 to 4 degrees (and on one occasion to 104 degrees F. within three hours of the injection), and then gradually decline to the normal. The pulse never went beyond 90. By February 16 the ptomaines secured by filtration of Fehleisen's coccus ceased to produce any impression and the pure serum drawn by aspiration from an erysipelatous bleb was inserted under the skin, but without producing erysipelas or a temperature above the normal. This was repeated on three occasions in one week with a similar result. A plug of cotton saturated with erysipelas serum introduced into the antrum also failed to give the patient erysipelas.

On February 21 pure cultures of Fehleisen's coccus of erysipelas caused a red blush in the skin on the leg, the point of injection, and this spread on the body into a well marked erysipelas lasting for several days. As no impression had been made upon the sarcomatous jaw, the treatment was discontinued, and two weeks later I removed the upper jaw, pterygoid process of the sphenoid, and the floor of the orbit. The patient recovered.

The limitations of this paper will not permit me to give minute details of cases. Suffice it to say that the literature of surgery, especially within the last five years, contains a number of cases which prove that septic inflammation, and particularly the sepsis of erysipelas, has a remarkable curative effect upon sarcoma.

In the application of these agents the observations already made show that pure erysipelas produces the most desirable curative effect, but that sarcomata will disappear as a result of inoculation with non-erysipelatous septic products.

As erysipelas is not without danger and since several cases of death are on record following the injection of the pure cultures of Fehleisen's coccus of erysipelas, even when these do not produce typical erysipelas, it is advisable at first to try thoroughly the injections of the sterile toxic products.

Dr. Wm. B. Coley, of New York, and Dr. Alexander Lambert, of the Laboratory of the College of Physicians and Surgeons, have obtained a perfectly sterile liquid by cultivating cocci of erysipelas in bouillon for three weeks, and then filtering. No heat is employed in this process. This fluid with the occasional addition of a certain quantity of the *bacillus prodigiosus*, I have employed in several recent cases.

Upon carcinoma the influence of erysipelas or of the toxic products is not so appreciable. That the growth of cancer is retarded and in some instances the neoplasm disappears under the influence of these agents, there is no doubt, but in my limited experience, and in the cases reported so far, these happy results are rare.

In 1893 an elderly gentleman consulted me in regard to a small epithelioma developed from a congenital mole or wart on the face, immediately over the right zygoma. A few days later he accidentally acquired erysipelas in the ulcer, which spread over an area of several inches, and was arrested by scarifying the skin just outside the limit of redness. The epithelial ulcer disappeared entirely with the erysipelas, but returned eight weeks later.

Dr. Wm. B. Coley has collected a series of nineteen cases of carcinoma in which eight, or 42 per cent., were well from one to seven years after the attack of erysipelas. In twenty cases of carcinoma three were permanently cured. Professor Spronck, of Utrecht, reports experiments on twenty-five inoperable neoplasms, eight sarcomata and twelve carcinomata. He employed a product made by "heating liquid bouillon cultures to 100 degrees Centigrade after adding 5 per cent. glycerin, then evaporating to one-tenth the volume and finally filtering through porcelain."

The results following the injection of this liquid were not so satisfactory as those reported by Coley, who obtains the toxic product without heating, while in Spronck's cases retardation was noticed and marked diminution in one or two instances, in no case was there complete disappearance of the neoplasm. In six recent cases of sarcoma reported by Coley, one entirely disappeared and had not returned in four months; another tumor of the pelvis and abdominal wall was reduced in six months from a diameter of seven inches to a small mass not over two inches in diameter. In four cases no well marked improvement was noticed.

Conclusions: Sarcoma may be cured by septic infection. The sepsis of erysipelas exercises the most powerful curative influence. Infection from the streptococcus pyogenes aureus will, in my opinion, also cure sarcoma. The injection of the sterile products of Fehleisen's coccus will also cause these neoplasms to disappear.

These agents act through the blood. Thus erysipelas attacking a breaking down sarcoma of the back, caused this to disappear simultaneously with a simi-

lar growth in another portion of the body of the same patient not locally infected. It is probably better to inoculate in the mass and get the local action of the inflammatory process when this is possible.

The lower the order of the structure of the sarcoma the less likelihood of a successful result. Thus in tumors of a myxomatous character the prognosis is less favorable.

Epitheliomata may also be made to disappear or their growth retarded by septic infection.

Adenoid carcinomata are only slightly, if at all susceptible, to cure or retardation in growth by these agents.

AMERICAN MEDICAL ASSOCIATION.—SECTION ON SURGERY AND ANATOMY.

The Section was called to order June 5 at 2 P.M., by its chairman, DR. JOHN B. ROBERTS, of Philadelphia, Pa. In the absence of the Secretary, Dr. Floyd W. McRae, of Atlanta, Ga., Dr. Reginald H. Sayre, of New York, was appointed temporary Secretary.

The Chairman read his address, "Some Surgical Sins."

The next in order on the program was the reading of papers pertaining to the subject of malignant growths. In the absence of DR. E. LAPLACE, of Philadelphia, his paper on "The Pathology of Malignant Growths" was read by title and referred to the Committee on Publication.

DR. J. H. WYTHE, of Oakland, Cal., read a paper on "The Radical Cure of Malignant Tumors by Operation."

"A Critique of the Sporozoan Theory of Malignant Neoplasms from a Micro-technical Standpoint," by DR. A. P. OHLMACHER, of Cleveland, Ohio, was read by the Secretary in the absence of its author.

Papers on "The Clinical Recognition of Malignancy in Tumors," by DRS. C. A. WHEATON, St. Paul, Minn., and HENRY W. COE, Portland, Oregon, were read by title.

DR. R. A. MCLEAN, San Francisco, Cal., followed with a paper on "The Necessity of Early Surgical Interference in Malignant Tumors."

In the absence of its author, DR. JOHN PARMENTER, Buffalo, N. Y., his paper on "The Value of Caustics in Malignant Growths" was read by Dr. H. O. Marcy, of Boston, Mass., and the Secretary did a like service for DR. L. DUNCAN BULKLEY, of New York, his paper being on the same subject.

DR. JOHN A. WYETH, New York, being absent, his paper on "The Value of Inoculation with Septic or Toxic Agents in the Treatment of Malignant Neoplasms," was read by title.

The same course was taken with the paper of DR. X. C. SCOTT, Cleveland, Ohio, and for the same reason, his paper being on "Non-Malignant Stenosis of the Pylorus and Duodenum."

DISCUSSION.

The discussion on the foregoing group of papers was opened by DR. H. O. MARCY, Boston, Mass., who said—Your presence in these large numbers shows the wisdom of the selection of this class of topics as a symposium for the day. It seems to me that hardly any subject could be brought up with greater profit for discussion than the accurate and proper understanding of what we might term the malignant growths by the common professional physician, as well as what shall be done with them by the surgeon.

As we are looking into it I take great pleasure in referring to the instructions, in this connection, of the late Dr. Bennett, of Edinburgh who, so far as I know, was the first to declare that malignant growths were 1, local; 2, constitutional. As I look around me I suppose the majority of those I see were taught the contrary—that malignancy was a disease of the body and had its local expression, and consequently it mattered not how we cared for it, it would be sure to come back. Thanks to Dr. Bennett, as I believe, the profession is indebted to the great progress which has been made in this respect, and it is now accepted as the general consensus of surgical opinion, on both sides of the Atlantic that malignant disease is 1, local; 2, constitutional. Now, if this be true, it seems to us that we can have no two opinions regarding its early treatment. Dr. McLean was extremely fortunate in reading his paper and stating the views with such emphasis as he did in reference to the early diagnosis of malignant disease by the general practitioner, and he should then be equally competent and careful as to what should be done with the same. I am glad to feel that in a very large class of cases the general practitioner may help the surgeon because if he does his early detecting, as has been suggested to-day, you need not demand to be very extreme and need not demand that higher class of skill which belongs to the specialist in this direction, and would give further emphasis to the earnest work of the general practitioner upon whom we must all depend much for the early knowledge of this class of diseases. The question has been discussed with real interest by two of the writers as to what it is and how it is disseminated, and it becomes of equal interest to us all. I can not help believing that it is disseminated in large measure, whatever it is, through the lymphatic system, and hence the importance of our understanding, as has been already pointed out by one of the writers, the relationship of the local growth and the lymphatic system.

One word further; some of us have made careful preparations for attempting experiments that we might determine something in contribution to this subject, and there is one paper that was read that is of real vital interest to myself. In my early studies I had no difficulty in differentiating a certain growth, a growth not alone to be detected in microscopic knowlege, but that could be detected in bacteriology; as to its reproduction in animals, and I feel very sure I should not have been sorry if I had been made a committee of one to make the experiment upon criminals, for I can not help feeling that there is not so much difference between animals and the human race, so far as malignant growth is concerned. However, that is one suggested problem that has not been given to the profession to solve. But in its solution by local attack, shall we use the caustics? The paper which I had the honor of reading, the paper of Dr. Bulkley, an authority whom you all recognize in this country as of primary type, so far as disease of this kind is concerned, I can not believe that you will fail to accept. At the most the argument for this has been for limited conditions; disease of the ear, of the lip, those superficial, of the skin. May we not equally well and with a great deal better results effect those local operations by the use of the knife, carefully eliminating the use of so much of the tissue as Dr. McLean showed you that he had done, that we may be quite certain that the surroundings are removed in such a way as to make it far more intelligently corrected, more certainly effective than by any application of caustic, no matter how wisely made? What does the caustic do? Both the writers have told you that in many instances they are utter failures. You and I have seen it over and over again—no matter if you grant that they are carefully and thoughtfully and scientifically applied—we have seen utter failures in the control of this disease; and why should we subject the patient to this painful suffering? Why should we make an open wound subject to further infection? Why should we attack that growth on the superficial tissues when any permanent good results are so uncertain and it causes so

much suffering, when it is so easy with the knife, and we may expect permanent results almost without failure, with the aseptic measures which are at our disposal, and leave our patient practically cured the moment he or she shall leave the table? And if this is true, the plea for caustics is one that should be relegated, and will be, only to the men who do not thoroughly understand the subject, and such men I am sure you will agree with me have no right to practice upon this class of surgical patients, with the dangerous means of sure delay and sure death. (Applause).

DR. GEORGE F. SHIELS, San Francisco, Cal.—In the paper read by Dr. McLean he narrowed down the differential diagnosis, leaving aside tuberculosis, to syphilis and malignancy, and in reference to it spoke of the method of differentiation by treatment. Now we all know perfectly well that the differentiation between syphilitic growth and granulum, and of malignant growth of epitheliomas especially, may be made in a large majority of cases; but I want to call attention to a particular kind of condition which exists at times, and which makes this means of differential diagnosis impossible. Sometimes there exists gumma which do not undergo dissolution in the face of treatment by any of our known remedies. Large doses of iodid of potassium have been found to fail utterly in getting rid of a gummatous growth. Combined with mercury it has failed and even with arsenic it has failed in getting rid of real gummatous growth. I have seen such growths occurring in the tongue. Now, as we all know, in diseases of the tongue you sometimes have a tumor with enlargement of the submaxillary gland and where you have a great difficulty in making a differential diagnosis. In some of these cases you might give iodid of potassium in large doses and still fail utterly in getting a differentiation. You may have had a series of points brought to your attention which make you think or suspect that that condition is gummatous, and yet in spite of your iodid of potassium it does not appear. In other words there is a particular form of gumma, which is almost a simple primary type and without danger to life, and yet if you take this method of differential diagnosis described by Dr. McLean as your guide you might possibly cut out a man's tongue, when you perhaps could have saved it by other means. I do not believe much in throwing in any new method of treatment here, but I will give you a case. You have a case of ulcerating tumor of the tongue and enlargement of the glands. It seems to grow a little larger; you give all these medicines; you fail to make it go away; you have reason to suspect that it is a gumma—I have seen such a case, and have used different decoctions, Zithen's decoction—I don't care what decoction—what I want to point out is this: That there is a condition in post-syphilitic gummatous growths which does not allow of immediate cure by the use of iodid of potassium, and that one should give a very careful consideration, especially to tumor of the tongue of syphilitic history before he proceeds to remove the tongue.

I had intended to make some remarks concerning this question of caustics, which ought to have been entitled, the lack of value of caustics in malignant growth, but Dr. Marcy has covered that subject pretty thoroughly. One thing I would like to say is, that whenever you apply a caustic to a part, no matter how slight or how strong that caustic may be, with the hope of curing a malignant disease you are applying it to a tissue which is undergoing rapid cellular change, you change the cellular growth and are liable to make a non-malignant growth a very malignant one.

DR. E. GRISWOLD, Pennsylvania—Dr. McLean has remarked a fact in regard to the necessity of excision, and I think his remarks are very correct, but there are conditions—we find cases in which it would seem that they ought to admit of a little variation. I have a case in mind. A patient comes to me with a tumor upon the breast, which is open, with the axillæ enlarged, and the patient seemingly can not live more than a year. She came to me five years ago last March and said: "Doctor, I have a lump on my breast and have come to you to get it cured, and if it can not be cured in any other way I will have it taken out." I looked at it and was obliged to tell her that she could not be cured at all, in any way. Well, couldn't anything be done for her? Yes, very likely your life may be prolonged by an operation, but a cure is impossible; your system is wholly involved—and, by the way, she was almost going to bed; her pulse was accelerated, she was emaciated and her appetite largely gone. I said: "If you choose to have the operation done I will do it." She thought it over three or four days and then sent for me. I performed the operation, took out a very large mass, the whole breast, and took out so much of the tissue that it was impossible to bring the wound together in any ordinary way. I put in wire sutures and made a slight incision in the skin at one point so as to make the cut surfaces come together, took out all the axillary glands, and after six weeks the cuts are completely healed except at this point where there was so much tension on account of the silver wires—and, by the way, the silver wires cut more than an inch before they were taken out. It all healed in a short time—the operation was done antiseptically—except at that one point. That woman is alive yet, and that operation was done five years ago. Now, that operation was optional. She had it done because I said it would prolong her life; nothing more was promised, nothing more was expected. She can't live a great while longer, but she has lived two or three years longer than she would have lived had no operation been done. I have had similar cases done by their wish after the patient had been told what could be expected and what could not be expected.

With reference to caustics, I have had a great many patients who had epithelioma mostly on the face, and sometimes on the hand and on the lip, and so forth, who would not submit to the knife—the knife was always my method if I could get the patient to submit to it, but rather than let them go on to destruction I would adopt any other method which I thought was practicable—and I got hold some years ago of a method of applying caustic, I scarcely know how, but better in my opinion than anything that has been presented to us to-day, and the treatment by it is done at one seance; one sitting does the work. It has to be done, however, in a peculiar and careful manner. The caustic made of sulphate of zinc, dried so that the water of crystallization is all driven off by heat, till it bubbles up after the water of crystallization is driven off, and then powdered in a mortar promptly and quickly so that it shall not absorb water from the air; put it in a bottle and pour in enough pure sulphuric acid, chemically pure, so that when it stirs up, it will make a paste so thick that when you put a little stick or little glass rod in it, a good sized drop will adhere to that stick or glass rod, and not drop off. Have plenty of absorbent cotton or plaster, and apply that all over the surface. It is a little painful but in about ten minutes it destroys the tissue to the depth of about one-eighth of an inch. Then take the point of your penknife and scrape it off until it begins to bleed, to the quick; then apply it again, and after four or five applications I have to use my judgment as to whether I have got all the cells out or not. I believe I have never failed in perhaps fifteen to twenty operations in getting a complete success the first time, except once, and that was on the hand where I was afraid of injuring the tendon. While scraping it that way you get all the cancer cells out and destroy them completely; it may take from an hour or an

hour and a half to two hours, according to the size of the epithelioma. Then you use any simple ointment you may happen to have and the pain is all over and there is no further trouble.

DR. MACLEAN, Mich.—I very much regret, indeed, that I was unavoidably detained and missed the principal part of this session, the more so that this is a subject which I think of the very utmost importance to the practicing physician and surgeon. There are one or two thoughts suggested to my mind in what I have heard since I came into the room that perhaps are worth presenting. In the first place, the question of diagnosis between benign and malignant tumors. A great deal of time and a great deal of genius and work have been devoted to this subject, and the profession has labored earnestly and honestly, early and late towards that point where we could be able to say, This tumor is malignant, and this tumor is simple and must be treated as a simple tumor. Of course the microscope and all the resources of histology and of chemistry, as well as those of the ordinary practice of surgery have been called to the aid of the practitioner in this matter. And after all I am afraid we must admit that we are far from having attained to a definite conclusion. Dr. Marcy referred to the teachings of Dr. Bennett, of Edinburgh, as to the local origin of cancer or malignant tumors. Now, I am perhaps the only man present who had the pleasure of listening to Dr. Bennett's teachings and arguments on that subject, and I remember also at the same time Prof. Symme was teaching on the same subject, and he had a very illustrative class of cases, namely the Highland shepherds, the men who spent a great part of their lives herding sheep in the Highlands, and the sole comfort of their days was their little clay pipe, which soon got broken down pretty nearly to the bowl, but it was all they had, and they had to use it. And the most common everyday cases that we met with in the Royal Infirmary in Edinburgh when I was a student there, was the Highland shepherd with his epithelioma of the lip. He smoked this little short clay pipe with the bowl close to the skin, and the epithelioma always appeared on the side of his mouth on which he carried his pipe. That seemed to be a very strong argument in favor of the origin of malignant disease from local irritation. If these cases came early enough and were excised clean and clear by the surgeon's knife and closed up, they healed within a few days, and we hardly ever saw the patient again; but if they were too late in coming, if the time had been allowed to pass on, and when the poor fellow arrived at the hospital he had enlarged glands under his chin or in the neck, no matter how carefully or how thoroughly the excision was made, a few months saw him back again with a great mass on his neck. There seemed to be a direct, straight, clear, undeniable history of malignant disease, commencing locally from local irritation and becoming gradually, general, constitutional, uncontrollable and fatal. But it is a curious fact that cases of tumors on the breast, cancers on the breast, tumors of various kinds come across our path every once in a while, where there seem to be all the characteristics of malignancy, and in which the result demonstrates that after all they were local, non-constitutional, treatable and curable, when other cases very similar, almost entirely impossible to draw the line between them, take an entirely different course. Now, then, what is the difference? What is the microscopic, physiologic, chemic condition which confers malignancy on one tumor and benignancy on another? In that direction I believe that sooner or later some great revolutionary discovery will occur by which we will be able to recognize the difference. I do not believe that at the present time, with any means we have at our disposal, we can speak with positive certainty as to the prognosis of a large class of tumors. Certainly we can not say what makes one tumor malignant and another benign.

Now, as to the treatment of tumors by caustic. I have always been taught and always believed that that is a system of treatment used before the days of exact knowledge, in the days when the surgeon was afraid to use the knife because he did not know what trouble he might produce, and that he might get beyond his depth. And it has always seemed to me to a very large extent an unscientific, cowardly, unsurgical method of treatment. I have always thought it myself and I have always believed it and at the same time I am ready to acknowledge that under certain circumstances, in certain cases, the treatment by caustics may be the best that we can use. The treatment just described by my learned friend, by the use of sulphate of zinc, which he says himself he accidentally stumbled across, I think, in fact I have no doubt of the absolute fact, was taught in a little different way by Sir James Simpson when I was a student in Edinburgh. Sulphate of zinc was prepared in the same way but used as a fine powder, and used for ulcerating, open malignant growths; and while it was temporarily painful it certainly did tend to stay the growth and prolong the patient's life. And besides that I believe that we did once in a while come across a little growth, or at least of a suspected character, a growth in which we had reason to believe that there may be a basis of malignancy, in which an operation with the knife is difficult and unsatisfactory, where it is so situated that you can hardly make a proper or satisfactory incision with the knife, and where by some such method as has just been described, by the use of caustic carefully applied, it can be got rid of very thoroughly, very rapidly and very efficiently; but my own impression is that that class is small. I think it would be unjust for us as surgical authors to lay down the doctrine that the treatment of cancerous growths by caustics is always unjustifiable. While I do believe that in a vast majority of cases it is abused and misused and improperly used, I believe that the larger number of men who use that form of treatment are men who do not know anything about what they are doing, further than that they have got hold of some kind of treatment, and they are going to relieve the patient and get what money they can from him. I think it cruel and unscientific treatment in a majority of cases, but it is like a great many medical and surgical applications. I do not think it is possible to lay down a hard and fast cast-iron law and say, You shall not use caustic, you shall always cut, or *vice versa*. I do not think we are in a position to do that at the present time. I believe in caustics. I believe in the doctrine of the local origin and local nature of malignant growth to a very great extent. Still there are exceptions. I was going to explain one single case, and then I have done:

A patient came to me with a tumor which involved all one side of the lower jaw. It had grown rapidly. It started in the submaxillary gland and involved the jaw. I removed more than half of the jaw, and the patient apparently recovered and was in good health for twelve years; went about his ordinary avocations and had no trouble. At the end of that time he returned to me, his jaw healed up; he had a wire plate and false teeth and the scar was hardly perceptible. No person could see that there was anything wrong with him at all, but away back behind his tonsil, the same side from which I had removed his jaw, there was a great malignant growth, a lump that it was impossible to cure. After twelve years of good health between the two tumors. Now I say it is very hard to reconcile such a case as that, and I can stand here and give you many such. I think it is hard to reconcile that with the theory of a simply local nature of malignant disease. The fact is in my opinion that we do not know just exactly what we do mean by ma-

lignancy. I believe that there is something more for us to learn in that direction; I am perfectly certain of it. I believe that there is something yet beyond the reach of the microscopic lens or the chemic test, but something which the rapid and magnificent progress of modern science, surgic, pathologic and anatomic, will clear up and we will be able to apply more effective and more satisfactory treatment to them.

DR. J. W. COPENOR, Iowa.—I do not wish to enter into any discussion nor to report any cases, but I do wish to do this; to give briefly my conclusion upon this subject from my observation and experience. I believe that these cases of cancer that have been cured were not malignant cancer I believe that we have to look beyond any local application or the knife for any permanent cure upon cancer. Further, that the cases that are supposed to have been prolonged to any great extent or possibly cured by the means that have been suggested were not malignant cancer, and the means had not been used prior to their treatment to ascertain definitely as to whether they were or were not, which can only be done, not by the naked eye, not by any observation, but by the microscope and if necessary, even a more critical examination than we could get from the microscope, and that is the only way we have of ascertaining definitely what we have. In 50 per cent. of the cases you will find that it is simply some other tumor aside from a malignant tumor. Then your local application, then your knives will be of some benefit. But if it be truly malignant then we have to look for something beyond all local treatment and the knife for a permanent cure, and I fear that it will be some time before we ascertain that.

DR. L. DUNCAN BULKLEY, New York—I am sorry I could not hear the discussion entirely, but I am glad it has taken the turn that it has, because no one feels more than I do its importance; there is no one who has thought more than I have of the danger of caustics as they are commonly applied. I believe in my paper I stated that many a case which would have proved a very simple affair has been urged on by caustics until it became malignant and beyond control of either the knife or caustics. I believe there is no one who more strongly than myself, in a large number of the cases that have come under my observation, urges instant operation. Many cases I have shown in clinics where there has been harm by the light application of silver, and as I mentioned in my paper in most cases I have advised against the use of it in any possible way for fear of tumor that I thought might be epithelioma. It should never be done. But in epithelioma of the face or the hand you certainly can get results with Marsden's arsenic paste Long before there is any danger of infection, I certainly should allow the paste to be applied in many a case in its early stages. But in many cases it is harmful, because the caustic has not been removed, because they have tinkered with it one way and another with irritating salve, and it has gone on until it has become too late for anybody to cure. In many of those cases you can get a better result than with surgery. As I stated in my paper, I believe the arsenic penetrates further than the surgeon will penetrate with his knife. I have had several cases operated on by surgeons—I do not operate myself—and I have repeatedly stood by and urged the surgeon to go further and he would decline to. I believe and I know that the arsenic follows down further than the surgeon will go. If you are going to cut out one of these things, go clear around it, beyond all possible penetration of that epithelioma, if you are willing to make a big scar—but upon the face and upon certain other localities you will not make a scar sufficient,—you will make the incision too small, and it will certainly come out on the outside as I have seen it time and time again. Sufficient paste put on rightly according to directions which are well recognized will penetrate further than the surgeon's knife. The scars from arsenic paste, used rightly—because every one has his own way of using these things, and he may not follow out all the details as another man would—the scar, I am sure, is preferable in a large number of instances to that left by operation. I have seen it leave a cicatrix that you can hardly see. The only point is to discover the proper paste, using it early and using it thoroughly, and I believe that you err greatly in supposing it, as some gentlemen have supposed it, below surgery.

DR. RANSOHOFF, Cincinnati—The cases of cancer that get well are cases of epithelioma, and some get well without treatment. Cases of epithelioma will sometimes run on ten or twelve years and finally get well. It has been stated by the gentleman from Iowa that cases of carcinoma never continue after this operation, and if I remember the words rightly, that we still have to proceed somewhere beyond the operation in order to effect a cure. Dr. McLean in his paper stated that when we see these cases of malignant disease appear early an operation, not very extensive, is possible, that it is justifiable—I do not remember his exact phraseology, but that is the impression that I obtained from his very admirable paper. I think in that remark he follows Bangs very largely in that particular, though Butlin as determined by his work, shows that it has been very largely corrected and destroyed by what he says concerning the treatment of malignancy by incomplete operation; in other words, by the mere removal of the tumor itself, leaving the parts overlying the tissues, leaving a part behind of the underlying tissue, and not investigating the axillary glands. We know very well that recently Dennis has made an admirable collection of cases from his hospital and private practice in which he had obtained a recovery in 15 to 25 per cent., which was a good deal higher than the recoveries obtained through the work of Gross. Now, say that all these cases were not cases of malignant disease, 15 to 25 per cent. of recoveries can hardly be within the limit of fact, because unless there had been a microscopic section of every tumor that had been removed in that way, in that case there could be no question at all as to the malignancy of the growth. Now, regarding the removal of the tumor, leaving the breast. It is not nearly so difficult to remove the tumor. Everybody knows that, but we know that such cases usually occur at a time of life with patients when the breasts are no longer so important, there is no longer very much physiologic need for that part of the anatomy. In the next place, to remove only the tumor leaves the integuments over it, and leaves frequently some important fascia, and it is here we have the secondary local developments of the case. One of the speakers suggested to be careful about palpating; one certainly can not do it in the axillary region through the integuments. Most of these cases happen with women with a fair or excessive development of adipose tissue, and you can not do this through the layers of much adipose tissue. For that reason, the disease being of the lymphatic glands, they ought to be opened invariably. It has been shown that not more than 2 per cent. of women die after the operation of amputation of the breast, simple amputation of the breast, and the mortality from opening and removing all the axillary glands is not excessive; the operation is not at all difficult. So I think that every woman who is unfortunate enough to be subjected to this operation ought to have not only the breasts removed, but the integuments over it. We do not have the large open wounds any more, because they can be skin-grafted at once, and the axillary region at the same time cleaned thoroughly. It is ordinarily in the axillary glands that the lymphatic disease produces its secondary consequences. From 15 to 17 per

cent. of the cases of carcinoma of the uterus have this result, because all of the glands involved are not removed, and the same is true of carcinoma of the rectum, which when it is thoroughly removed does not ordinarily produce metastasis. I did not hear Dr. Wyeth's views here upon this subject, but I feel quite certain that if Dr. Wyeth had read his paper upon the radical treatment of malignant disease, it would not have been upon the use of superficial applications with caustics, but upon the use of methods; that he would have told us something about a method like amputating at the thigh, that is to say, going up just as far as you can, and then the mortality will be diminished to a minimum. I did not hear the paper which was recently read before the Maryland State Medical Society by Halstead, of Johns Hopkins, but somebody stated that Halstead presented quite a large number of cases of malignant disease operations in which the mortality was not more than 6 per cent. But in these remarks I merely wanted to take exceptions to the remarks made by one of the speakers namely, that in cases of recoveries from malignant disease of this class they are in the nature of an Irish bull; they are not malignant diseases at all.

DR. JULES ROSENSTEIN, San Francisco—In the discussion about malignant tumors, I have missed a necessity which I think is of paramount importance, in knowing which tumors are malignant—we have been talking here mostly of cancers. Cancer to my mind does not convey a very distinct histologic meaning. There are different kinds of malignant tumors, epithelioma, carcinoma; there are sarcomas, and among the sarcomas there are again different degrees of malignancy, the round-celled sarcoma and the spindle-celled sarcoma; we all know that the round-celled sarcoma is a much more malignant growth than the spindle-celled sarcoma; also that certain kinds are of local origin—in fact, originate from some local irritation. We have the epithelioma of the chimney sweepers in some parts of Germany, caused by sliding down the long chimneys and coming in contact with the soot, and which is removed without the danger of recurrence; the parafine epithelioma of the workers in parafine factories, which attacks only certain parts of the body that come in contact with certain material used in the manufacture of parafine. In fact, we have a theory which can be fortified by a great number of facts that constant irritation, be it by whatever cause, can stimulate the growth of the epithelial cells; that they become malignant. We know that at different orifices of the body, orifices that are exposed to constant irritation by the passage of food or other material, the different passages of the stomach, rectum, the mouth, and even the cervix uteri—all these are liable to be the first or the original seat of certain kinds of carcinoma. To throw all this together without any etiologic differentiation, without saying, this kind of tumor is malignant, this kind of tumor is easily infecting the general system, while that one is growing slowly, I think is a scientific matter. The fact is, that kind of tumor, epithelioma, slow-growing epithelioma, can be treated by early operation, and if the lymphatic glands are not infected we have a certain moderate assurance of a permanent cure. We can certainly not guarantee that after a time, be it long or be it short, the lymphatic glands in the neighborhood of the tumor will be free from infection from the original point, and we will not have any secondary growth of the same kind of tumors. Indeed, as one of the talented speakers just now remarked, it is certainly dependent upon the nature of the tissues, upon the anatomic relations. Some parts that have no great connection with the lymphatic glands in their immediate neighborhood will form their growth slower; others are surrounded by a network of lymphatics that will certainly be apt to make the infection more general.

As to treatment with caustics, I believe that ought to be relegated to ancient history. We certainly can not say that our caustics shall do effective work, shall penetrate the lymphatic glands and channels and shall clear out all the infected ones, and leave the others perfectly sound and perfectly unaffected. We must rely on a very much extended operation to protect our patients, operations that can be done with safety now with the antiseptic treatment, and operations which ought to be done to protect them against infection, operations that go into all the possible channels of infection and thereby extirpate all that we can reach, and then trust that the infection has not gone any farther. That is all we can do; all we ought to do, but not any more than we ought to do. Anything that we do less is a crime against the patient. And I think the more extended the operation in early cases that come into our hands, the more benefit we will do the patients that are intrusted to our care.

DR. BISHOP, Pennsylvania—It seems to me that there is a belief on the part of this Section, and we ought to be decided in the expression of our opinions in regard to the question of the use or non-use of caustics; and I think that we owe it to our practitioners, and to our patients both, that we should be decided in the expression and assume the responsibility so that we shall be deterred, you might say, from the use of caustics. Certainly the tendency is to do more hurt than it is to do good. The percentage which would be relieved will certainly be less than the percentage relieved by operative measures, and it looks like a measure in which the practitioner either is afraid to assume the responsibility of an operation, or he is afraid that he will lose a patient, and he makes concessions to the patient and lets the patient select the operation instead of having the courage to select it himself. It is a cowardly act, it seems to me, and the man ought to assume the responsibility, and the Society ought to assume the responsibility, and give a decided expression. I think we would make no mistake by doing that, and we do make mistakes by leaving it an open question as to whether the one or the other should be used.

DR. I. M. QUIMBY, Jersey City, N. J.—I think this differential diagnosis should have an important bearing. You take the case in which a local irritation has brought out or developed the disease, as by tobacco. These are the cases in which a different form of treatment frequently may be had. You take a case, on the other hand, where it seems to grow, a sort of imperceptible growth, without any definite or any positive local irritation there; I think you have something of a constitutional disturbance, and so you can not make your diagnosis more exact of all diseases. It has been laid down by some writers on tumors that they are all of local origin. I think that is a mistake. There are some that certainly are constitutional. You can not treat those with the same line or kind of treatment. I had a case of exuberant granulation that came to me—a burn after six or eight years' treatment with all sorts of mild caustics, burnt alum, and nitrate of silver; the local physician had used that for several years—the case came to me, and I found that I could do nothing with it and advised amputation. However, I sent him over to the hospital, thinking that Dr. Bulkley with his experience in a cancer hospital might say differently, but he thought nothing could be done but amputation. I simply mention this case to show the damage that may be done, a benign tumor, a non-malignant trouble, a simple burn that had been tortured into a malignant growth, and the man lost his arm. So we want to be right on the thing to be used, and use it thoroughly. I think the plan laid down by Washington Atlee several years ago is a good one, that all patients should be treated in a constitutional way, and if it is by the arsenical operation, for one or two or three months take the Powers' solution, which I have done

in several instances with marked success, and where there was no return. I operated upon a lady twenty-five years ago for a malignant growth on the lip. I treated her with mercury for a while, and then the potassium iodid, and then I put her on the treatment of the arsenical operation and kept her on that for three months. That was twenty-five years ago and the trouble has not returned, and I could give you a number of instances to illustrate what I think is the success of constitutional treatment after that operation, whatever it may be. As far as local treatment is concerned, I do not think we ought to be like machines to follow any one treatment, although I believe in the knife. It is the quickest, and I think it is the safest, especially with epithelioma of the lip. In flat cancers of the face perhaps paste may be important, but where you can amputate, excise, I think it is better, and the patients do not suffer so much. I have noticed in several instances where the patient has been treated with caustics his health seems affected from the constant irritation, and that does not occur with the knife. Therefore I give preference to the knife, and then constitutional treatment afterward.

The Chair appointed as a Nominating Committee, Drs. D. W. Graham, Chicago; H. M. Sherman, San Francisco; and D. Root, Connecticut; and as alternates on the Business Committee to supply vacancies, Drs. Joseph Ransohoff, Ohio; and R. H. Sayre, New York.

Adjourned.

SOCIETY PROCEEDINGS.

Colorado State Medical Society.

The twenty-fourth annual convention of the Colorado State Medical Society was held June 20, in Denver.

Dr. E. J. A. Rogers called the convention to order shortly after 10 o'clock. At that time there were present E. J. A. Rogers, S. A. Fisk, A. M. Bucknum, A. S. Lobingier, E. R. Axtell, V. P. Munn, W. F. McClelland, W. E. Wilson, J. N. Hail, John Chase, John N. Foster, J. W. Collins, Howell T. Pershing, I. B. Perkins, Jesse Hawes, Greeley; E. C. Rivers, Herbert Work, Pueblo; C. F. Shollenberger, J. W. Exline, A. Nickerson, T. M. Burns, J. Kelly, J. E. Waxham, D. E. Wetzel, George Cleary, C. P. Conroy, W. Weist, O. A. Pfeiffer, O. W. Mill, P. F. Gilder, Colorado Springs; A. J. Baker, P. D. Rothwell, W. J. Rothwell, C. K. Fleming, E. H. Fish, O. H. Simmons, Leadville; J. T. Beatty, Lupton; J. W. Collins, H. B. Whitney, J. N. Vroom, G. M. Black, E. H. Allison, F. D. Green, E. C. Rivers, E. M. Marbourg, Robert Levy, W. C. Bane, W. W. Bulette, Pueblo; R. F. Le Mond, E. J. Rothwell, Mrs. Exline and Mittie Bradner, J. C. Herrick, G. B. Packard, Una G. Roberts.

Dr. Hubert Work, of Pueblo, read the annual report, which showed healthy branches of the Society to be in existence in the principal towns of the State. Reports were also read from the Treasurer and the committees on publication, and medical societies.

The main business of the convention was then proceeded with. Papers on various diseases and their various methods of treatment were read, among them being these: "Operative Treatment of Granulated Lids," by John M. Foster, Denver; "Some Cases in Ophthalmic Practice," by F. D. Green, Pueblo; "Report of Two Cases of Removal of Cataract and of a Piece of Steel at the Same Operation," by E. C. Rivers, Denver; "A Report of Eleven Cases of Intubation of the Larynx in Denver, Colo., with Exhibition of a Lamp for the Sublimation of Calomel," by F. E. Waxham, Denver; "Dacryo-Cystitis and Its Complications," by E. M. Marbourg, Pueblo; "A Valuable Artificial Membrana Tympani," by Geo. Cleary, Denver; "The Treatment of Empyema of the Antrum of Highmore," by Robert Levy, Denver; "The Use of a Modified Nasal Trephine in Hypertrophic Rhinitis," by G. M. Black, Denver; "Ophthalmic Memoranda, by W. C. Bane, Denver; "Acute Otitis Media," by W. W. Bulette, Pueblo; "What a General Practitioner Should Know About Eye Troubles," by R. F. Le Mond, Denver; "Eczema Marginatum and Eczema Seborrhœicum," by D. E. Wetzel, Denver.

The afternoon session opened with a symposium on obstetric difficulties. Dr. Jesse Hawes, of Greeley, read an interesting paper on "Rigid Os," which was followed by Dr. W. S. Bagot, of Denver, with an able and argumentative paper on "Extra-uterine Pregnancy." Another carefully prepared and statistical paper was that by Dr. Herbert Work, of Pueblo, on "Maternal Impressions." The preponderance of opinion quoted by Dr. Work appeared to favor the theory that unusual mental or physical agitation of the mother during her term of pregnancy was almost certain to be transmitted to the child.

"Unusual Operative Procedures" was the title of an exceptionally practical paper by Dr. Neil McPhatter, of Denver. The woman and babe whose lives Dr. McPhatter saved were present at the session. Dr. McPhatter said: I believe the part assigned to me for discussion this afternoon is a consideration of the unusual methods or extraordinary measures that may legitimately be resorted to in difficult parturition, when the difficulties assume such proportions that the woman can not be delivered by any of the ordinary means. My sphere is limited to a still narrower margin than this, for I have been informed by the gentleman who so kindly invited me to participate in this discussion to endeavor to confine my remarks more particularly to that part of the obstetric art which calls for the use of cutting instruments, *i. e.*, when there exists such a disproportion between the natural passage and the size of the fetus as to render it absolutely impossible for the child to be delivered in the ordinary manner. Then we come upon a peculiarly interesting and tremendously responsible situation, for it is one in which the lives of mother and child are placed in imminent jeopardy, and one which calls for the highest and at the same time most evenly balanced judgment on the part of the attending physician. In the remarks to which I give expression I trust I shall approach the subject free from the thralldom of preconceived ideas, and unbiased in the advocacy of any one method of procedure only in so far as the merit of such a method demands.

Fortunately for mankind, more particularly for those who are obliged to bear the burdens and dangers of parturition, nature in her own inimitable ways and by ordinances that far surpass in beauty and perfection of design the imagination, is usually quite competent to fulfill this trying ordeal. Occasionally, however, the ordinances of nature are disregarded. Morbid influences in the pelvis of the mother or unnatural development on the part of the fetus may render it absolutely impossible for the woman to be delivered normally, and it is here that the cunning hand of the surgeon may be of the utmost importance to life. It is highly commendatory to the standing of the profession at the present time that the principles we advocate have been so beneficial to mankind. The method in vogue not many years ago of resorting to the operation of craniotomy with the appalling disasters that followed in its wake, forms one of the darkest pages in the history of obstetrics. When one contemplates the frequency with which this operation was resorted to in preference to others much less dangerous, it would seem that the spirit of scientific midwifery was long lulled to sleep and that nature had become emasculated. The operation of eviscerating the yet warm and quivering body of an innocent babe from its mother's womb should be reserved for very rare and exceptional cases, such as hydrocephalus, or where the child is already dead. Much more satisfactory and humane methods are the Cæsarean section and Porro's method of operating.

Porro's operation, unlike the majority of recent triumphs in surgery, is not one which has been resuscitated after having been performed and discarded many years before, but is of comparatively recent origin. The first successful case on record was performed in the year 1876 by Porro of Bavaria. It has since been performed a great number of times with comparatively good results. Heretofore, and even at the present time, this operation and the Cæsarean section had been indiscriminately advocated when the condition present called for one or the other method. I believe this to be a mistake. Whether the Cæsarean section can have any advantages over its recent rival rests wholly upon a question of morals. Certain it is that there are well defined conditions and complications in pregnancy when Porro's method is the only scientific course to pursue.

Each method may possess well-defined advantages over the other, and in estimating the relative values of Porro and Cæsarean sections a number of important conditions should be remembered. In all cases where pregnancy is complicated by tumors, such as fibroid of the uterus, ovarian, or dermoids, as was the condition in this case, hysterectomy is the preferable operation. Where labor has proceeded for a long time and the uterus becomes putrid, Porro's operation ought to be selected. In certain operations begun as Cæsarean sections, but which become complicated by difficulties in the detachment of the placenta, uncontrollable hemorrhage or complete atresia of the vagina, Porro's is the

operation indicated. These are some of the advantages that this operation possesses over the classical one. In straight, uncomplicated cases I doubt very much if the Cæsarean method is superior to the Porro. The advocates of the Cæsarean section maintain that because Porro's operation forever renders the woman sterile, the Cæsarean method has the advantage. This question again is one altogether of morals; but given a woman with a deformed pelvis and a contraction of its diameters, so that one or the other operation was absolutely demanded, and believe the fact that one would save her life equally as certain as the other, the one that would place her in such a condition that pregnancy could not again occur would be the preferable one. I look upon this point alone as a decided advantage of Porro over its rival. Such a proceeding would leave the life of the mother absolutely free so far as any future chances were concerned. I am well aware that this is at variance with the opinions of many able minds, but nevertheless it is one that I have long maintained, and is at least one of honesty.

There can exist no reason why this operation, if properly planned, carried out with as much care and precaution as other abdominal sections should not be almost entirely free from risk, as far as the lives of mother and child are concerned. It is to be regretted that in a great majority of instances the idea of the operation does not enter into the head of the physician until the patient becomes almost entirely exhausted from the reiterated efforts of the uterus to expel the fetus. An operation of this character above all others should be done opportunely and not left until the rough manipulations have exhausted the woman and materially reduced her chances. It can readily be understood why the mortality of this operation has remained so high, in view of the fact that it is usually done as a forlorn hope. On the 16th of last August I was called in consultation by Dr. E. J. Rothwell to see a patient who was eight months and a half pregnant.

History Given.—Woman had contracted pelvis, had previously borne twins weighing three and one-half pounds each. Last confinement craniotomy performed after repeated efforts of days; confined in bed for three months afterward. Upon examination I found conjugate diameter not over two inches. Cervix so high I could not detect it with my finger. I could, however, make out that the fetus was alive and that it was in fourth position. It was of large size, and we felt it was physically impossible to deliver the patient by the normal channel.

This we explained to her and her husband, and advised the removal of the child by abdominal incision as the method attended with the least risk. To this they willingly consented, and she was removed to my private hospital on Vine Street and was prepared for ovariotomy. We decided to operate several days before the expected time of labor. Thursday morning, August 23, she was put under the influence of anesthetic by Dr. Leavitt. The abdominal incision was made in the median line and was continued above the umbilicus. Bleeding points were caught up by pressure forceps and secured. The transversalis fascia was cut through to the extent of the abdominal wound. Before the incision into the uterus was begun, several warm flat sponges were placed between the uterus and the intestines, for the double purpose of keeping them from cooling and preventing fluid from escaping into the abdomen. The incision was vertical, beginning near the fundus, cutting toward the cervix about four inches. I went carefully through the whole extent of the incision, layer after layer, until I came to the membrane, which was intact. The uterine walls retracted, exposing the fetus as through tissue paper. I ruptured the membrane, and the uterus contracted, the child entered the world head first, crying lustily, and was turned over to one of the attending nurses. Here I was confronted by an unexpected complication of two tumors of the ovaries, and decided to remove them also, together with the uterus. As in hysterectomy for fibroid tumors of the uterus, experience has taught us that the extra-peritoneal method of fixation of the pedicle is one followed by the most favorable results. The simple method of converting the temporary elastic ligature into a permanent one is as good as any and saves time. The pedicle was now fixed in the lower part of the wound after all clots were removed from the Douglas cul-de-sac. In order to prevent the pedicle from retracting, a staple or two steel pins are passed through it, immediately above the constrictor. The peritoneum was then sutured separately. The deep sutures to close the abdominal wound were inserted subsequently. Stitches were inserted as in other abdominal sections and the wound dressed. The patient made a very satisfactory recovery. Her temperature remained normal for nearly two weeks. She now, as you may see, is enjoying the best of health.

At the close of the doctor's remarks and at his request the lady in question came up to the platform with her baby in her arms. As the President took the plump little fellow in his arms for a moment and held him up before the audience, the room resounded with hearty cheers for the youngster.

Dr. C. F. Shollenberger's paper on "Albuminuria" was discussed, the opening by Dr. Kate Lobingier, of Denver. The other papers which were discussed were: "Puerperal Fever, its Etiology, Pathology and Prevention," by T. A. Stodard, Pueblo; "Should Ergot be Used during Parturition and the Subsequent Involution Period?" by E. Stuver Rawlins, Wyoming; "Floating Kidney," by W. A. Campbell, Colorado Springs; "Cases of Floating Kidney," by W. B. Craig, Denver; "La Grippe During the Puerperal State," by T. M. Burns, Denver; "Nephrectomy, with Report of a Case and Demonstration of Specimen," by A. S. Lobingier, Denver.

The visiting members to the convention were entertained at a reception by the lady managers at St. Luke's Hospital. Afterward they went to Manhattan Beach in special cars and attended a performance tendered by Dr. J. M. Foster, of the Society.

Medical Society of the District of Columbia.

The Medical Society of the District of Columbia, June 21, continued the discussion of the prevalence of typhoid fever and a pure milk supply, so auspiciously commenced last week. The hot weather had a visible effect on the attendance. Though only a few were present the discussion, however, was earnest and interesting.

The meeting was called to order with Dr. S. C. Busey in the chair.

Dr. Robert Reyburn read a report in which he took exception to that portion of the committee's report in which they stated that cases of typhoid fever diminished as the city was more thoroughly sewered. He cited data to show that such was not the case, and claimed that while perhaps the increase in typhoid cases was very small, yet the sewerage system was increasing with great bounds, and this was an absolute proof of his claim. Dr. Reyburn then read a report of an investigation of certain alleys in the city. He referred to Cedar alley in particular. He spoke of improper water closets, and scored the health officer for his neglect of duty. In the course of his remarks Dr. Reyburn made mention of the pump at Sixth and O Streets, which was so universally condemned at the last meeting. Dr. Busey interrupted and said:

"That pump is closed."

"Indeed," said Dr. Reyburn; "since when?"

"Since last Wednesday night," said Dr. Busey, and the little sally was met with a laugh.

Dr. Benjamin C. Poole read an exhaustive report on the death rate from typhoid fever. He claimed that typhoid fever was not as prevalent as was supposed. He claimed that many deaths laid at the door of typhoid fever were due to malarial fever. He next attacked the committee's report on pumps. He declared that never had there been any authentic report of a case of typhoid fever resulting from well water. He called the report "untrue, illogical, and based on the misrepresentations and miscalculations of those who had made the investigation."

Dr. J. W. Chappell then said that he had gathered from what had been said that there was a very low percentage of deaths from typhoid fever. He objected to this, and said that he believed that it had increased, not because there was any real increase of typhoid, but because physicians had changed their diagnosis. He showed by figures that real typhoid fever, however, was on the decline. He said that in 1880 the death-rate was 107; in 1882, 141; in 1890, 122; and in 1892 it stopped at 98.

Dr. Chappell then went on to attack the belief that wells

were conducive to typhoid fever. He said his experience had not taught him that, and furthermore, he was a disciple of the theory that water filtered through the ground would be purified. He said that he believed that the wells in the city were no worse than in the country for this reason. He admitted that the ground in the city was more befouled than in the country, but claimed that the rule still held good.

Dr. C. G. Stone, of Brightwood, rose to antagonize the claim that an improved sewerage system checked typhoid fever. He said that in his district there was not a proper sewerage system. He added that there were not as many cases in his district as in the city. Despite this, he said, he wished to declare himself in favor of the sewage system now under consideration by Congress, and would do all he could to push the matter along.

Dr. G. L. Magruder thanked the Society for their almost unanimous indorsement of the report of the committee as reported to the Society. He stated that at the outset the work appeared to be easy, but as time wore on its laborious details became evident, and the report was the result of hours and days of hard labor. He felt confident that the report was correct.

It was in every detail as faithful as it was possible to make it. Therefore he asserted again that typhoid fever was on the increase, and again that to wells this increase was due. He complained bitterly of the way in which certain members of the Society had hounded the report as a sensational bugaboo. He said that these things were true, and that it was better that the Society were awake to the fact and prepared to combat the disease, rather than to shut their eyes and allow the alarming growth of disease to pass unnoticed in order to lull an unsuspecting public into a sense of false security. Therefore he asked for the indorsement of the recommendations made by the committee.

Dr. W. W. Johnston said that he wished to reply to Dr. Smart, who had asserted that water in rivers was particularly conducive to typhoid fever. He said:

"It is not a question for us to settle. Authorities have settled the matter for us, and it is an absolute certainty that polluted soil and well water are prime factors in producing typhoid fever.

"It is an undisputed fact that the *pro rata* of typhoid fever is on the increase. It may be a few more or a few less than last year. Nevertheless it is on the increase, and it is for us to rise and try to overcome the disease. Now let us go to work, drop all differences, adopt this report, and go to work with a will to stop this evil."

Dr. S. S. Adams moved that the committee's report be adopted. The motion was carried.

The Society then took up *seriatim* the report of the special committee relative to the matter of unlicensed physicians practicing in the District. At this point the reporters were excluded from the room.

Upon a motion made by Dr. Adams the meeting adjourned until fall.

Medical Editors Banqueted.

[From the San Francisco Examiner.]

The banquet of the American Medical Editors' Association, which is annually held, took place June 4, at the Palace Hotel. It was the first event of the extensive medical congresses and meetings which are to be held during the week. Last night the editor-physicians were the guests of R. E. Queen, of San Francisco. About ninety doctors and their guests, many of them famous throughout the world, lined the three beautifully decorated tables in the banquet hall.

After the first few courses had been disposed of, Dr. C. H. Hughes, President of the Editors' Association, introduced as toastmaster Dr. I. N. Love, of St. Louis, Chairman of the Committee of Arrangements. After all, doctors know as well as secularists how to enjoy a banquet, and the President of the Association lost no time in beginning the fun.

"I take pleasure," he said, "in presenting you a toastmaster early in the evening, while I can vouch for him. He is all right now, though I can't say how he will be at 12 o'clock. But I have examined his head and find him thoroughly normal at present."

Dr. Love rose and got even on his introducer at once, and then said the reason he appeared in a dress suit was because he had learned from experience to carry one in his pocket handkerchief when he went traveling. "Seven years ago," said Dr. Love, "the custom of holding these banquets was inaugurated at St. Louis. Long may it be perpetuated."

Dr. Hughes responded to the first toast, that of the Editors' Association. He greeted the assemblage as he had had the pleasure of doing last year in the Arlington Hotel in Washington. "We are going to see all the sights of Chinatown, Benicia Bay, the Midwinter Fair without the Plaisance, and last, but not least, San Francisco's warm-hearted and beautiful wives and daughters." He entered upon a eulogistic tribute to the value and importance of medical journals to the profession, and also to the outside world. "We help commerce itself," he said, "for we keep men in condition to get up and get a move on, and keep commerce lively."

In the absence of Dr. James F. Hibberd, President of the American Medical Association, who is eighty years old, ex-President Henry O. Marcy, of Boston, did the honors for the National Medical Association.

With the true gastronomic recklessness of physicians the banquetters plunged into sweetbread patties and all manner of indigestible dainties, and the speeches went on.

Dr. John Morris, one of the best known physicians of Baltimore and a great wag, told how he once met a seedy friend who asked for a loan. "I don't like to give you money upon the street," I replied, "but here is a ticket for a banquet—a $10 affair. You can get enough for a week." "Any speeches?" he asked. "Oh, yes; Chauncy Depew, McVeagh and others—fine speakers." "Oh, Lord," he said piteously, "I haven't eaten for three days, but keep the ticket; I would rather starve."

Dr. P. O. Hooper, of the American Medical Association, spoke, and was followed by John B. Hamilton, editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, the largest of its kind in the country.

Winslow Anderson was the first San Francisan to speak. He responded to "Our Guests," and bade the editor-doctors a hearty welcome to the Golden State.

Dr. R. H. Plummer, Chairman of Committee of Arrangements, seconded Dr. Anderson's remarks of welcome in a few well chosen words.

Dr. Lane, as President of the Cooper Medical College, told of the fine old physician who had first planted the tree of medicine in California, and then Dr. Taylor, of San Francisco, the retired physician and present attorney, answered to a sentiment which was fittingly expressed in Shakespeare's words: "An honest man he is who hates the slime that sticks on filthy deeds." Dr. Taylor spoke of the affection he bore the medical profession and how he always felt identified with it, in spite of the twenty-one years he had been pursuing a different calling.

"Woman" came in for her share of adulation under the able handling of Dr. Lyman Beecher Todd, of Lexington, Ky., and "The Medical Purveyor, Handmaiden of the Physician," was responded to by Dr. A. L. Hummel, of Philadelphia. Dr. R. Beverly Cole responded eloquently to "The Old Guard." The banquet did not break up until a late hour.

Those invited were:

A. Wyeth Hamilton, L. C. Lane, R. H. Plummer, J. F. Hibberd, C. H. Hughes, R. E. Queen, I. N. Love, R. B. Cole, J. A. Wyeth, S. Parkinson, E. R. Taylor, Warren Olney, J. D. V. Middleton, W. W. Kerr, W. F. McNutt, J. A. McLean, W. R. Cluness, J. F. Morse, J. L. Frazier, G. W. Woods, T. W. Huntington, W. E. Briggs, Walter Lindley, J. H. Wythe, W. A. Briggs, W. P. Redington, H. Michaels, A. Mack, J. Rosenstein, Washington Ayer, Clinton Cushing, C. N. Ellinwood, R. L. Rigdon, A. Hartsuff, W. S. Thorne, J. O. Hirschfelder, William T. Fonda, William Pinniger, J. C. Queen, L. B. Todd, B. L. Coleman, E. D. Ferguson, Justin Steer, S. Pollak, Robert Levy, P. O. Hooper, I. N. Quimby, F. C. Greene, A. C. Cotton, H. Brown, W. B. Rogers, —— Jerome, Donald Maclean, J. M. Duff, W. F. Jarvis, A. L. Smith, John Morris, S. Loving, G. W. Stoner, J. J. Mulheron, W. W. Imrie, George M. Gould, Mr. Shrody, Winslow Anderson, S. O. L. Potter, N. F. Essig, F. W. Sultan, B. T. Whitmore, M. M. Walker, J. D. Griffith, W. R. Ballard, W. W. Watkins, C. G. Chaddock, George Wilkinson, F. P. Foster, A. L. Hammond, J. King, G. B. Shattuck, E. W. Cushing, L. B. Edwards, W. F. Winn, H. A. Hare, E. Martin, A. W. Brayton, Theo. Potter, J. E. Minney, J. V. Shoemaker, H. Bert Ellis, J. C. Denise, J. B. Hamilton, F. L. Simon, A. L. Fulton, Frank Woodbury, W. H. Pancoast, J. G. Kirvan, F. S. Parson, J. E. Harper, E. Lanphear, E. S. Briggs, A. J. Stone, F. D. Crothers, H. O. Marcy, W. Wyman, I. C. Scott, C. W. Smiley, Dr. Barnet, J. W. Keating, F. W. Mann, A. R. Baker, E. Walker, H. F. Newman, George Wilkinson, H. D. Holton, A. C. Bernays, E. H. Hughes, R. T. Morris, W. H. Evans, H. N. Moyer, L. A. Duhring, H. C. Coe, J. C. LeGrande, E. O. Shakespear, E. F. Ingals, E. Montgomery, P. H. Millard, A. Garcelon, W. B. Atkinson, J. W. Duff, J. S. Marshall, G. C. Stockton, L. D. Bulkley, H. McGuire.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE., CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual subscription to THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

SATURDAY, JUNE 30, 1894.

SCHOOLS OF PRACTICE.

In the trial, still pending before a Circuit Court in one of our largest cities, of a petition for a writ of mandamus against a State Board of Health—which is also a medical examining and licensing body—to compel the Board to issue its certificate, authorizing the petitioner to practice medicine and surgery in the State, the plea is made in support of the petition that the Board is actuated, in its refusal to issue such certificate, by hostility to the school of practice of which the petitioner is an adherent; and, is moreover, dominated by members who are identified with colleges which are competitors and rivals of the college of which the petitioner is a graduate. It is not necessary, for the purpose of this article, to indicate more definitely the State Board which is thus attacked, nor to advertise more widely the institution which is seeking to pose as the victim of oppression and persecution. The suit, in itself, is referred to only as the occasion for pointing out some defects in the practical execution of legislative attempts to regulate the practice of medicine.

It too often happens that, as in the present instance, licensing and examining bodies embrace in their membership those intimately connected with teaching and graduating institutions. It is, perhaps, natural that this should be so; the appointing power, in casting about for *materiél* for such bodies, is very apt to be attracted to those who have already attained prominence in the profession as teachers and educators; and, other things being equal, the appointment of such prominent individuals seems, *prima facie*, to be fit and proper. But when it is considered that these gentlemen are called upon in the discharge of their duties as examiners and licensers, to sit in judgment, not only upon their own graduates, but upon the graduates of other and often rival schools, such appointments are seen to be eminently unfit and improper.

The logical tendency of all serious effort for a higher standard of qualification for the practice of medicine is toward the absolute divorcement of the teacher from the examiner and licenser—the devotion of the medical college to its legitimate function as an organization of instructional agencies, pure and simple; the creation of an examining and licensing body to judicially determine the results of that instruction. Obviously, the *personnel* of these two agencies may not be identical without the risk of lending color to such charges as those set up in the suit which is made a text for these comments.

Another and a much more readily cured defect in the current system of licensing and examining, is that which grows out of taking cognizance of "schools of practice." In this mandamus suit it is plausibly urged as a sufficient reason for the Court's interference that, while there is representation on this Board of the regular, the "homeopathic" and the "eclectic" schools, there is none of the particular school to which the petitioner belongs. With a court, still more with a jury, such a plea will undoubtedly have weight; and whatever of plausibility it may have is gratuitously furnished by the Board itself.

Unlike the laws in some States, the law creating this Board and defining its duties, etc., does not require it to take cognizance of any school of practice; but in its rules and regulations it is provided that if an applicant for license on examination "has special views of theory and practice of medicine or of therapeutics a special examination in such branches will be held." It is urged upon the Court in this case that there is no member of this Board qualified to examine the petitioner on the theory and practice and therapeutics of his school; that the members one and all, are prejudiced against his school and its practice, and that great injustice is thereby done him and those like-minded unto him in this respect.

Why have "special examinations" in these branches? Why have any examinations at all in theory and practice, materia medica or therapeutics?

If, upon examination, an applicant for the licens to practice, be found well grounded in anatomy, physiology, chemistry, pathology, surgery, obstetrics, gynecology and hygiene—the branches of medical science common to all schools—his qualifications for the practice of medicine have been sufficiently demonstrated; his views and theories on the etiology of disease and on the action of remedies may be safely eliminated from the examination.

Practice and therapeutics are expressly excluded from the examinations in many States—notably in Alabama, where the regulation of medical practice is, probably, more thoroughly systematized and with more benefit to the profession and to the public than in any other State of the Union. Where the law does not require otherwise, boards of examiners would do well to follow this example and thus re

move the pretext for future charges of "intolerance," "proscription" and similar terms addressed to the ears of the groundlings.

THE TERM NEUROSIS.

The uses made of the term "neurosis" in the medical literature of the present day strongly suggests a certain indefiniteness in the concept it conveys to the average medical writer on the necessity of a new definition. In the latest and most elaborate medical dictionaries we still find its principal signification given as "a functional nervous disease, without ascertainable structural lesion," though some, like Billings and Thomas, also allow it in one sense to cover all nervous disorders in general. If neurosis, however, is used in this sense, it can not at the same time be applied to any special class of these affections, as would seem to be usually the case. The neuroses are very commonly spoken of as a class, apart, a special type of nervous disorders, and among them we find included not only hysteria (which is really a psychosis in the medical sense of the word) and neurasthenia, with their manifold phases, epilepsy, chorea, migraine, exophthalmic goitre, and other diseases of undetermined pathology, but also infectious diseases like tetanus, disorders with observed structural lesions like paralysis agitans, acromegaly, certain trophic affections, and even club feet and harelip and various other structural defects of degeneracy. The widest signification of the term can only include these last, in the sense that they are more or less the results of nervous defects, and this they share with every possible form of congenital or developmental malformation. Genius is said to be a neurosis; beauty and deformity might equally well be thus designated.

The fact seems to be that in the progress of pathologic research the old class of functional nervous disorders is dying out, or rather medical men are losing faith in it and they are becoming looser in their usage of the terms that belonged to it. The general and the special meanings of the word, neurosis, are used confusedly; when one is employed there is also a flavor or suspicion of the other, and the scientific definiteness of the term is sacrificed. This has been particularly noticeable in some recent papers, and it is not an advantage in any respect.

It is questionable whether a new definition of the word is desirable, and whether we have not yet a use for it in the special meaning it has hitherto held. It need not be, as some have claimed, merely an expression of discreditable ignorance, or a limbo for the results of inefficient diagnosis; there will always be some forms of disease of undetermined pathology, and there is no harm in grouping them under a common name and of using the same, if we only guard against the too common error of assuming that giving a name to a thing implies its full explanation. Neurasthenia, hysteria, and the more general term "neurosis" can still be used scientifically, and meet a want; what we need is more accuracy in their employment. The usage and not the vocabulary needs most to be reformed.

THE CLERGY AND THE MEDICAL PROFESSION; THE MEDICAL CODE A TONIC.

It has long been recognized that the best supporters—on paper—of quack medicines are the Protestant clergymen. No class of persons, except it be the conductors of the religious weeklies, concoct more false testimonials for belts and nostrums and anti-drink specifics than do the average clergymen. Why this is so, is sought to be explained by SIR JAMES CRICHTON-BROWNE, at the opening of the Sheffield Medical School.

"Quackery," says SIR JAMES, "is patronized in high places; it is supported not only by the dull and ignorant, but by the presumably educated and intelligent. It may flourish in our manufacturing centers, such as Sheffield, but the very hot-beds of it are our fashionable watering places and health resorts, and I am assured that, while our skilled artisans are least of all given to quackery, our learned clerics are most addicted to it. Well, I think our learned clerics should seriously reflect, that in giving countenance to the nostrums of the empire, they exhibit a credulity and superstition that must seriously impair their usefulness in their sacred calling with all thoughtful men. Great may be the faith, but small must be the wisdom of the man who believes he derives benefit from a non-electric belt! What exegetical insight is possible in him who swallows patent pills? They should remember—these learned clerics—the commendation of the Bereans, and they should search the Scriptures, that is to say the newer scriptures of science and common sense, to see if these things be so."

But if this they fail to do, they must, as SIR JAMES shows, await a day of judgment according to the rule of right. His contention is that there is "above and beyond any special code of honor appertaining to the medical profession, the general code of ethics, to which that and all professions are amenable, and as regards that general code, I would say that medical practice is daily demonstrating to those engaged in it, its reasonableness and wisdom. To those who faithfully pursue it, medical practice affords an ethical training and discipline of the best kind; it opens a refuge from pessimism in the opportunities it gives for the relief of sorrow and suffering; it unveils, in the tender ministrations of the sick-room, some token of the angel as plainly as competition discloses vestiges of the tiger and the ape, and it fosters that wide sympathy that yields hope for the future of our

race. 'The man shall die,' said DAVID, 'not because he did this wrong, but 'because he had no pity'."

Concerning that branch of ethics that we call "our Code," DR. CRICHTON-BROWNE is free to admit that the majority of his colleagues are competent to pursue the path of rectitude without a printed guide-book, but for the weaker brethren, "a code of honor supplemental to the general ethical code is *an admirable tonic*." Let those who are strong, and need not a physician or a prescription, remember there are always the weak with us and the Code is their best tonic.

INTERNATIONAL MEDICAL MISSIONARY INSTITUTE, NEW YORK.

In New York city, a training school for indigent young men and women, desirous of fitting themselves for life in foreign lands, has been in operation about twelve years. It is conducted by DR. GEO. D. DOWKONTT at two houses on East Forty-fifth Street. The present accommodations suffice for students not in excess of twenty, whereas eight times that number are on the books as applicants for admission. The trustees, having obtained subscriptions amounting to $100,000, look forward to the construction of a new building with room for two hundred, or two hundred and fifty pupils. They will be ready to break ground as soon as there shall be $250,000 on their subscription list, and men of large means and practiced liberality have expressed their favorable opinions of the work in hand. The last annual report of the institution says:

"We believe we have found a solution of the problem of true missionary work in the establishment of a fully equipped medical missionary college. Our society is incorporated and has a board of eighteen managers of various denominations. The average annual income for the last six years has been about $10,000. In addition to training students born in this country, the society has had in training the natives of twenty foreign countries. We shall begin putting our plans into execution as soon as the site is obtained. For the completion of the necessary fund we look to the generosity of those interested in true missionary work."

SUBJECTS ON WHICH OPINION EVIDENCE IS INCOMPETENT.

Evidence in the nature of expert or opinion testimony, is not competent, and can not be received, the Supreme Court of Nebraska holds, in the case of the Atchison, Topeka & Santa Fe Railroad Company v. Lawler, decided May 2, 1894, upon a subject of inquiry which is of such a kind or character as to be within the knowledge of men of common education and experience, and to require no special skill, knowledge, or experience in considering or forming an opinion upon it, as the jury will be presumed, if all the facts are before them, to be competent to draw the inference and form the opinion from such facts.

SECTION REPRINTS.

Gentlemen desiring copies of section reprints of particular sections will please send their names to the JOURNAL at once, unless they subscribed at the meeting. No section book will be published unless there are at least fifty subscribers for the volume.

CORRESPONDENCE.

STAFF CORRESPONDENCE.

A Visit to Yellowstone National Park.

After the sessions of the ASSOCIATION had adjourned *sine die* and the San Francisco meeting had passed into history, some of the members took their way southward as far as Los Angeles and Coronado Beach, or visited the famous Hotel Del Monte at Monterey, and admired its magnificent park and gardens. Some climbed Mt. Hamilton to see the famous Lick Observatory, and returning, drove out to inspect the great Leland Stanford University at Palo Alto and the stock farm in the vicinity, where the equine aristocracy reside. Others turned northward to Portland and Tacoma, to explore the Sound regions, the scenes of the recent floods, and from thence went to Alaska, or turned their faces eastward in the direction of the Yellowstone National Park, which they ultimately reached after many vicissitudes that upset carefully laid plans and caused some vexatious delays. Our party took the Union Pacific direct to Ogden and Salt Lake City, where some of the local physicians distinguished themselves by their courtesy and hospitality to their guests. Many of the delegates and members on their way to the Park spent part of a day at Butte, Mont., where they were also warmly received and entertained by the physicians.

A brief account of a tour of the Park may prove interesting and not inappropriate, since the party of members of the AMERICAN MEDICAL ASSOCIATION who started for Mammoth Hot Springs on the morning of June 18 was the first this year to go over the Continental Divide to the Yellowstone Lake, and thus make the complete tour of the Park. This party consisted of C. A. Wheaton and A. Macdonald, of St. Paul; M. P. Van der Horck, of Minneapolis; Dwight W. Day, of Eau Claire, Wis.; O. Wellington Archibald, of Jamestown, N. D., and Frank Woodbury, of Philadelphia. Capt. George S. Anderson, U. S. A., in charge of the military post and Acting Superintendent of the Park, under authority of the Secretary of War, being acquainted with some of the party, kindly accepted a very pressing invitation to spend the week in going through the Park in their company. Capt. Anderson combines distinguished executive ability with great geniality and social qualities which make him a delightful companion, while his acute interest in everything pertaining to the Park, and his abundant information upon every subject which attracts the attention of visitors, constituted him a most desirable and important addition to the party.

All visitors enter the Park by way of Cinnabar, fifty-one miles distant from Livingston, which is on the main line of the Northern Pacific Railroad. Upon arrival of the delegates at Livingston, the railroad company very courteously made up a special train to convey them from Livingston to Cinnabar, where stages were in waiting to take them to the Mammoth Hot Springs, the first stop in the Park. In the vicinity of the hotel is the U. S. military post already incidentally referred to. The miniature hospital here is under the direct management of Capt. Chas. M. Gandy, M.D., who is an efficient officer as he is a refined and cultured gentleman. We were once more impressed with the

thought that the AMERICAN MEDICAL ASSOCIATION would be the gainer if all the medical officers in the United States service could become active members of our National medical association.

Near the Mammoth Hot Springs Hotel are the first evidences of geyser action in the form of springs of boiling water which deposit mineral salts, and here these deposits have in the course of ages formed immense terraces of travertine, which is almost pure calcium carbonate. In this formation various forms of algæ flourish which give color, and produce a pleasing variety of tints, to the formations known as the "Cleopatra Terrace," "Jupiter and Minerva Terraces," the "Orange Geyser" and the "Elephant." Starting from the hotel on the first day of the trip, the road passes the formation and enters Gardner Canon, through a defile called the Golden Gate. The road, which is an exceedingly good one, winds around the side of a mountain, having on one side the cascade of the river and on the other steep peaks extending upward to the region of perpetual snow. Evidences of volcanic action are numerous, but none is more striking than the cliffs of obsidian, or volcanic glass, which are passed a little beyond the canon. The scenery is very fine, the mountains being covered with trees up to the snow line; while here and there small lakes are seen, which resemble gems in their brightness of color, some being blue, others green or prismatic in their shades. The Twin Lakes, although lying side by side, are entirely different in their color, one being emerald, the other sapphire. Springs of cold water are frequently encountered, but rarely are any seen which so closely resemble the famous Apollinaris Spring as the one found near the obsidian cliffs, which furnishes a soda water of very pleasant taste, like that for which it has been named. At the Norris Geyser Basin a stop of an hour or more is made for lunch. Here there is a large mass of the formation already alluded to, in which there are frequent fissures which give vent to steam, or rivulets of hot water. In the sheltered places on the mountain side are patches of snow which furnish a marked contrast to the steaming plateau. This is noticed more particularly at the side of the road where the "Old Growler" geyser pours forth a constant volume of steam and hot water from the midst of a snow-bank.

Starting again after lunch, the party traversed the Gibbon Canon, where a fine view of the falls of the Gibbon River are obtained. A stop for the night was then made at Fountain Hotel, having travelled over forty miles the first day. Immediately in front of this hotel is the "Fountain Geyser" near which are the "Paint Pots," as they are called. The latter are small lakes of pigment of different colors, kept constantly in agitation by escaping bubbles of steam. The "Fountain" was the first real geyser we had seen. It spouts about every half hour, sending upward a large stream of water with vast clouds of steam, the exhibition lasting about five minutes. The hot water from the geysers is piped into the hotel for bathing purposes. As it is alkaline and somewhat sulphurous, it should have valuable medicinal effects; it certainly has a very pleasant action upon the skin. The second day was full of incident. After leaving the Lower Geyser Basin, Fire Hole River was soon reached. This is a large mountain stream stocked with rainbow and speckled trout, which we readily demonstrated by catching some two pounders of very gamey character. It is a strange sight, however, to observe streams of boiling water pouring over the bank, while a little beyond two geysers, the "Morning Glory" and "Riverside," at intervals threw large streams of boiling water out over the stream. Soon we came into a district surrounded by geysers, steaming and spouting like whales on every side, the place being not inappropriately termed "Hell's Half Acre," except as to area, which is nearer ten acres. This probably was not in the mind of the author who wrote on "Ten Acres Enough," or he might have altered his title and pronounced it more than enough. Here fifty-one miles from Mammoth Hot Springs is "Old Faithful" which plays every sixty-five minutes, sending a stream nearly 200 feet into the air lasting about ten minutes.

Among the noted geysers in this field are the "Giant," "Grotto," "Castle," "Saw Mill," "Oblong," "Artemisia," "Lion," "Lioness," and "Cub." This being enough for one day's stock of impressions, we turned back eleven miles to the Fountain Hotel for the night. The third morning we passed the geysers again, and leaving the Fire Hole River, which is the commencement of the Madison, one of the sources of the Missouri River, we crossed the Continental Divide and soon came to the Snake River which empties its waters finally into the Pacific Ocean. In crossing the Divide, which is over 9,000 feet elevation, we found considerable snow in the road, which in places was above the hubs of the wheels, so that on the 20th day of June we were stuck in the snow and were obliged to get out of the wagon and walk on the frozen surface. The views of Shoshone Lake and the mountains were very impressive, and reminded us of scenery in Norway, the firs and hemlocks, and Kepler's Cascade completing the picture. Several elks were seen, including a young calf at the side of the road, which our party got out to pet, while the anxious mother viewed the proceedings from the adjacent hillside, where she was half concealed by the brush. We reached the Thumb, nineteen miles from the Upper Basin, in time for lunch. Near this place are boiling springs in which a fish or an egg can be cooked in a few minutes. The Thumb is a bay in Lake Yellowstone which, in its southern portion, is extended or spread out in inlets resembling a human hand. The lake is a beautiful body of fresh water some thirty miles in length by ten to twelve in breadth, and is bordered by snow-capped mountains which remind one of the Swiss Alps. There is a steamboat plying on the lake, which has the distinction of being the only steamboat in the world at this altitude. On this boat we took passage to the northern end of the lake near its outlet into the Yellowstone River. We here found a good hotel, the Lake House, where we stopped for the third night of our tour through the Park.

The following day we started about 9 o'clock for the Grand Canon, passing the beautiful Hayden Valley, in which we saw some groups of deer, and we also passed the "Mud Geyser," which is a cavern, in the recesses of which black mud eternally bubbles and boils like a witch's caldron, presenting a most gruesome and uncanny appearance. In the afternoon, we took a light wagon and drove over to Inspiration Point and Lookout Point. The views of the Upper and Lower Falls are entrancing, the latter having a sheer descent of 360 feet, which is double the height of Niagara Falls, but the views of the Grand Canon of the Yellowstone from Inspiration Point are almost unearthly in their grandeur, to which no words of description can do justice. At the bottom of the canon, a thousand feet below, the river pursues its tortuous course, like a green ribbon, between precipices and peaks of varied hues, crimson, yellow, white, and other shades which combine to produce a weird unnatural effect. On a peak below us, there is an eagle's nest in which the young birds are plainly visible, quite unconscious of their apparently perilous position. In looking down the canon, the view is seen which Moran has represented upon canvas, but which defies the artist's brush or the pen of the ready writer, to reproduce or describe its sublimity and unconventionality if we may use this word with such application. Leaving the Grand Canon with regret, but much refreshed by a good night's rest, we took stage again for Mammoth Hot Springs, our starting point, where we arrived

on Friday evening, having stopped at Larry's, at the Lower Basin, for lunch. The following morning the party left the Park and returned to the every-day work-a-day world through the Paradise Valley of the Yellowstone as we had entered it a week before. In reviewing our recent impressions, it was thought proper to express in a formal manner, our opinion of the resources of the Park from a medical and hygienic standpoint, and the following was accordingly drawn up and signed by the physicians who had just had such unequalled opportunities of inspecting the locality under the direction of its presiding genius and genial Superintendent, Captain Anderson.

The testimonial read as follows:

"MAMMOTH HOT SPRINGS, June 26, 1894.

The Yellowstone National Park, having an average elevation of about 8000 feet, an inland mountain climate, mineral springs of special value for medicinal purposes, and pure air ozonized by innumerable coniferous trees,—impresses us as being preëminently suited to be the site of a great sanitarium. Its mineral waters, which are of varied chemical composition, are in no way inferior to those of the celebrated European baths and springs, and we believe that they should be utilized, by the medical profession of the country especially, in the treatment of diseases for which such waters are commonly employed."

LETTER FROM EUROPE.

No. II.

PRAG, BOHEMIA, June 2, 1894.

To the Editor:—In all German schools of medicine, pathology is given a most prominent place. In accordance with this idea, the medical faculty of the Prag University obliges the student to give much attention to this subject and has a separate building for pathologic anatomy. This building is large, modern, well constructed, and admirably adapted to the work. The Professor, his three assistants, the demonstrators, have each separate rooms where they may work undisturbed. There is also a well equipped bacteriologic laboratory in connection with this department, entirely distinct from the one of the Institute of Hygiene, which is in another part of the city, and presided over by Hueppe. The room for microscopy where class instruction in pathologic histology is given is large, well lighted and well fitted for such work. Tables, chests, shelves, etc., are set apart in this room and in side rooms, for special workers in pathology. The autopsy room is so arranged that three autopsies can be made at the same time.

The museum of pathologic anatomy, containing about five thousand specimens, is a model of its kind. There is not a single specimen that can not be immediately used for demonstration. No dust has to be removed or change of alcohol made before it is brought to the class, for under the watchful eye of Prof. Chiari, the preparations are kept always ready for presentation. Scarcely a gross pathologic change can be mentioned that has not its representation here; and Prof. Chiari can step to the museum and aided by his wonderful memory, almost immediately lay his hand on the very specimen he desires to use to illustrate his point. New preparations are being constantly added. I was not aware until I came here of the extreme value, as an adjunct in teaching, of a well stocked, and well kept, museum. Too many of our museums I fear, are mere unsystematic collections of pathologic curiosities and monstrosities, gazed at through the glass doors with half understanding eyes by a few students, or displayed to the curious visitor as one of the great possessions of the college, a treasure no well regulated medical institution should be without.

I may say here, while speaking of museums, that through the kindness of Prof. Rabl, I was enabled the other day to see the museum of anatomy in the Anatomical Institute. Here, too, is a collection well utilized. At the time of my visit, at least twenty specimens were absent from their places on the shelves, as they were to be used the following hour to illustrate a lecture on the anatomy of the nervous system. And I noticed another excellent feature of the Anatomical Institute, viz., a study room for students where were skeletons, loose bones, charts, etc., to aid in the study of anatomy, and all freely accessible to the student. The advantage of studying anatomy with the bone directly before one or in one's hand is self-evident. I was interested in a preparation of the vascular system made by the celebrated Hyrtl in 1848, when he was the anatomist at Prag.

To return to the Pathological Institute. Every morning between 8 and 11 the autopsies are made by the Professor or his assistants. On an average about five or six autopsies a day can be seen. A week ago I saw nine in one day and on another day ten. At 11 o'clock all the specimens are reviewed by the Professor, who corrects errors in diagnosis, investigates further when necessary, criticises the work of his assistants, discusses the cases, etc. I find this one of the most enjoyable hours of the day. At 12 is the didactic lecture on pathologic anatomy. At 1 o'clock the specimens from the autopsies are demonstrated to the students, who, after the demonstration, can examine and handle the specimens as freely as they wish. Whenever a patient who has been before the clinic dies, a "clinical section" is made by Prof. Chiari himself, unless there are two or three to be performed at the same time, when assistants aid the Professor. A "clinical autopsy" is witnessed by the clinical professor and his class. To see a patient in clinic, listen to the clinical exposition of the case, have the opportunity of examining the patient in the ward, and then to witness the autopsy, is certainly the ideal method of studying medicine.

All specimens from surgic, gynecologic and obstetric clinics come to this Institute for pathologic diagnosis. Every day specimens of the most various descriptions—tumors, tubercular joints, gangrenous limbs, extrauterine pregnancies, extirpated glands, ovarian cysts, prematurely born fetuses, etc., are brought to Prof. Chiari for his diagnosis. A brief clinical history always accompanies the specimen. When the diagnosis has been made, and this necessarily often involves microscopic examination of the specimen, a card is made out and returned to the clinical professor with the pathologic diagnosis. It is, perhaps, needless to add that bacteriology as one of the important aids to diagnosis is freely made use of in the autopsy work and wherever necessary in the histologic examination of specimens from clinics. No post-mortem diagnosis leaves the Institute that has not been passed upon by Prof. Chiari.

It is somewhat comforting to find that we in America, are not the only ones who sometimes err in matters of diagnosis. I have seen here the best of the teachers make mistakes. Perhaps the most instructive feature of it all is to see the interest the diagnostician takes in the autopsy, and his eagerness and readiness to profit by his errors. The European teachers certainly have a great advantage in having their mistakes corrected by autopsy. The lesson of a mistake of this kind *corrected*, is of more value than the most accurate diagnosis. It was very amusing a few weeks ago, to see the expression on the face of a surgeon who witnessed the autopsy on the woman from whom, the day before he had removed the uterus with an enormous myoma, the patient dying, as the autopsy showed, from thrombosis of the pulmonary artery. During the operation he had separated the tumor from the under surface of the liver, to which it had become adherent, ligating several large vessels. The autopsy showed that what had been regarded as the liver was a large lobe or nodule of the tumor, entirely free from the liver and other organs, and showing plainly where its

connection with the main tumor mass had been severed by the surgeon. When this mass was slipped under the liver its edge just projecting, felt very much like that of the liver, even having a little indentation corresponding to the notch for the gall-bladder, so that one could clearly see how a mistake of this kind could be made. The surgeon's look of amusement, incredulity and chagrin as the revelation was made was worth remembering.

Other errors I have seen in all departments. In but a few instances could the error be regarded as one due to carelessness. Usually the error has been one of judgment. I mean that the utmost care is usually taken in examination of cases, more care than is usually seen in our hospitals. Too little importance is, at times, as it seems to me, attached to the anamnesis. And there is a tendency with some also, to be drawn away from some cardinal, vital symptom, by the findings of some of the newer methods of diagnosis whose value may not be, as yet, fully established or is, in part, theoretical, *e.g.*, some of the urinary or blood findings, or examination of the stomach contents.

Of the personal characteristics of the various teachers, here is not the place to speak; nor is it in good taste to institute comparisons. Yet I can not forbear to speak in the highest terms of Prof. Chiari, both as a teacher and a scientific man. His lectures and demonstrations are clear, terse, always up with the times. He knows as well what not to tell students as what to tell. He always creates the impression of having an immense reserve fund of knowledge, as telling you what was best for you to know and not all he knows. He works rapidly and accurately, and his post-mortem macroscopic diagnoses rarely have to be corrected by the microscopic or bacteriologic examinations. He is a strict disciplinarian, demanding of all who work under him quick obedience and the same fidelity and thoroughness that he exemplifies in his own daily work. He is personally watchful over all the details of the work in the Institute and is, as he himself says, very particular and pedantic. He is impartial in his praise or censure of all work done, according as it deserves the one or the other criticism. One who desires to do special work in pathology would find him a careful, inspiring and faithful guide. Were it permissible in a letter of this kind to say more concerning his personal characteristics, I should gladly pay tribute to the many charming and manly qualities of Prof. Chiari.

I can not forbear adding, as a sort of postscript to this letter, a description or rather a mere enumeration of the interesting post-mortem cases seen in the Pathological Institute this morning, June 4:

1, Tuberculosis of the lungs; secondary basilar meningitis in a child 9 years old; 2, broncho-pneumonia in a child; 3, carcinoma of the liver, probably primary in the liver; icterus gravis; 4, primary carcinoma of the common bile-duct; icterus gravis, etc.; 5, splenic-myelogenic leukemia with intercurrent erysipelas as the immediate cause of death; 6, congenital syphilis in a child with characteristic, well marked changes in heart, lungs, liver, spleen; osteochondritis in all the bones examined—femur both ends, tibia, humerus, ribs. Fracture of femur from version during parturition. Child dead ten minutes post-partum; 7, infiltrating carcinoma of the stomach with clinical history showing difficulty of diagnosis in so many of these cases, though it had been made correctly (Pribram) in this instance; 8, old appendicitis, suppurative phlebitis, pus still visible in vessels leading from appendix to mesentery, embolic abscesses of liver, pyemia, with retro-pharyngeal and double middle ear abscesses; 9, syringomelia; clinical course somewhat resembling tabes dorsalis; death due to typhoid fever developed during stay in hospital; 10, old echinococcus cyst of brain, right occipital lobe and encroaching, by pressure, on posterior horn of lateral ventricle. The cyst, the size of a walnut, was surrounded by cicatricial tissue and a capsule so hard from calcification as to require the bone shears to cut it. Echinococcus hooklets found in the softened mass in the interior. History showed patient healthy up to 15, then epileptic attacks frequently recurring; no focal symptoms; gradually developing paranoia, death at 22 during an epileptic attack. Chiari's theory that at the time of the first attack, seven years before, the infection with the echinococcus occurred, certainly seems rational.

I felt as I witnessed the autopsies and saw these specimens, listened to the epitomized clinical histories and the clear and concise demonstrations of Prof. Chiari, that I had food for reflection and study for a week.

Very truly yours, JAMES B. HERRICK.

Woman's Hospital and Foundlings' Home.

DETROIT, June 22, 1894.

To the Editor:—Dr. Longyear, President of the medical staff of the Woman's Hospital and Foundlings' Home, has requested me to ask you to notice in your journal the following resolution, which was adopted at a recent meeting of the Trustees of that Hospital:

WHEREAS, The arrangement, providing that nurses from the Correspondence School of Health and Hygiene be allowed to practice in the Woman's Hospital and Foundlings' Home, was made without due consideration; therefore

Resolved, That such arrangement be, and is hereby discontinued from this date, and that a resolution to the effect that no relation whatever exist between the said Correspondence School of Health and Hygiene and the Woman's Hospital and Foundlings' Home be published in medical journals already specified. MRS. KATHARINE V. H. WELLS,
Recording Secretary.

MUNICIPAL HALL, PITTSBURG, PA., June 14, 1894.

To the Editor: — Please insert the following in your journal:

To the Members of the Medical Board holding examinations in Pittsburg:—We, a committee representing the candidates from the various colleges, by joint resolution hereby tender for ourselves and colleagues our sincere thanks for the courteous reception extended and the fair treatment shown to us.

Resolved, further, that this resolution be spread in the medical journals of the various States.

Represented:—Drs. A. D. Davidow, Chairman, College of Physicians and Surgeons, Chicago; A. C. Davis, Secretary West Pennsylvania Medical College, Pittsburg, Pa.; W. F. Bayley, University of Tennessee Medical College; W. A. Clementson, Jefferson Medical College, Philadelphia, Pa.; R. B. Cunningham, Louisville Medical College, Kentucky; D. Molyneaux, Royal College of Surgeons, Dublin, Ireland; J. C. Walker, University Medical College, New York; W. J. Cooper, College of Physicians and Surgeons, Baltimore, Md.; Clemens R. Jones, Columbus Medical College, Ohio; John W. Kiger, Medical College of Ohio; Mary E. Chrystie, Woman's Medical College of Pennsylvania; McCurdy Bricker, Medical College of Indiana.

SOCIETY NEWS.

New Hampshire State Medical Society.—The annual meeting of the New Hampshire State Medical Society was held at Concord, June 18 and 19, 1894. The last day's proceedings were as follows:

Officers elected—President, Dr. David P. Goodhue, of Springfield; Vice-President, Dr. E. F. McQuesten, Nashua; Treasurer, Dr. H. M. Felt, Hillsboro Bridge; Secretary, Dr.

G. P. Conn, Concord; Executive committee, Drs. Charles R. Walker, Concord; Geo. D. Towne, Manchester; F. A. Stillings, Concord; W. T. Smith, Hanover; Dr. F. E. Kittredge, Nashua. Trustee for three years, Dr. Levi G. Hill, Dover; Anniversary chairman, Dr. Robert Burns, of Plymouth.

Delegates to Dartmouth Medical College: Drs. A. Noel Smith, Dover; Ira H. Adams, Derry Depot.

Committee of Arrangements: Drs. F. A. Stillings, D. Edward Sullivan, Arthur K. Day, Chas. W. Lovejoy, N. W. McMurphy, Concord.

Board of Censors: Drs. D. S. Adams, G. D. Towne, Manchester; Thomas Hiland, Concord; John W. Parsons, Portsmouth; C. B. Hammond, Nashua; C. B. Drake, West Lebanon; Leonard Jarvis, Claremont; J. C. Eastman, Hampstead; I. J. Prouty, Keene; M. E. Lathrop, Dover.

Council: A. G. Straw, D. G. Adams, Manchester; W. K. Wadleigh, Hopkinton; D. Edward Sullivan, Concord; H. A. Weymouth, Andover; E. L. Carr, Pittsfield; G. D. Frost, Hanover; S. N. Welch, Sutton; J. W. Staples, Franklin Falls; G. S. Gove, Whitefield; G. H. Saltmarsh, Lakeport; Edward French, Concord; J. F. Robinson, Manchester; J. W. Parsons, Portsmouth; S. M. Dinsmore, Keene; T. B. Sanborn, Newport; D. L. Slater, Rochester; H. M. Felt, Hillsboro' Bridge; C. B. Hammond, Nashua; C. A. Fairbanks, Dover.

Delegates to the State Societies: Maine, E. E. Graves, J. W. McGregor; Vermont, Edward Abbott, H. K. Falkner; Massachusetts, G. M. Kimball, H. T. Boutwell; Rhode Island, D. L. Stokes, F. W. Spaulding; Connecticut, A. W. Shea, W. R. Garland.

Committee on Publications: Drs. G. P. Conn, H. M. Felt.

Orators: Drs. G. D. Frost, Hanover; S. N. Welch, Sutton. Substitutes, J. W. Staples, Franklin Falls; G. S. Gove, Whitefield.

Papers: Drs. Edward French, Concord; W. K. Wadleigh, Hopkinton; H. A. Weymouth, Andover; G. H. Saltmarsh, Lakeport; S. W. Roberts.

Report on Surgery: J. F. Robinson, Manchester.

Necrologist: John J. Berry, Portsmouth.

On account of the illness of President Carbee, the annual address was omitted and the time was occupied by Dr. G. P. Conn, of this city, with an interesting paper on "Sanitation in Mexico."

The anniversary dinner was served in the private dining room at the Eagle Hotel at 1 o'clock.

Dr. Ira A. Prouty, of Keene, anniversary chairman, presided, and after grace had been said by Rev. F. D. Ayer D. D., the following hour was spent in discussing the various items on the menu card, which constituted one of Landlord Pelren's famous spreads.

At the conclusion there were interesting post-prandial exercises, the sentiments and responses being:

"The New Hampshire Medical Society," President Goodhue, Springfield.

"The State of New Hampshire," Governor John B. Smith.

"Methods of Medical Instruction," Prof. Quackenbos, New York City.

"Our Lady Members," Dr. Ella Blaylock, Nashua.

"Our Brethren across the Connecticut," Dr. Hill, Bellows Falls, Vt.

"The Druggist, the Physician's Helpmeet," Dr. S. M. Dinsmore, Keene.

This concluded the exercises of the meeting which has been one of the most successful in the history of the Society.

The next meeting will be held May 30, 31, 1895.

Ontario Medical Association.—At the annual meeting of the Ontario Medical Association held in Toronto, Ont., the contract system of lodge doctoring was discussed. The special committee appointed for the purpose of considering the question reported that the Association consider all such lodge contract work unprofessional, and recommended that the medical council declare the practice as unprofessional under the statute.

This was put in form of motion and carried. The following officers were elected for the ensuing year:

President, Dr. Bruce Smith, Seaforth; First Vice-President, Dr. A. A. Macdonald, Toronto; Second Vice-President, Dr. Welford, Woodstock; Third Vice-President, Dr. Saunders, Kingston; Fourth Vice-President, Dr. Forrest, Mount Albert; General Secretary, Dr. J. N. E. Brown, Toronto; Assistant Secretary, Dr. Charles Temple, Toronto; Treasurer, Dr. J. H. Burns, Toronto. The following committees were appointed with the chairmen named: Committee on Credentials, Dr. A. J. Johnson, Toronto; Public Health, Dr. H. J. Hamilton, Woodhill; Legislation, Dr. William Britton, Toronto; Publication, Dr. Charles Sheard, Toronto; By-Laws, Dr. G. Hadge, London; Ethics, Dr. J. W. Williams, Ingersoll; Advisory, Dr. J. D. McDonald, Toronto. It was decided to hold the next annual meeting in Toronto.

BOOK NOTICES.

An Illustrated Dictionary of Medicine, Biology and Allied Sciences, including the Pronunciation, Accentuation, Derivation and Definition of the terms used in Medicine, Anatomy, Surgery, Obstetrics, etc. And the various Sciences closely related to Medicine, Bacteriology, Parasitology, Microscopy, Botany, Zoölogy, Dentistry, Pharmacy, etc. By GEORGE M. GOULD, A.M., M.D. Based upon recent scientific literature. 1894. Pp. 1,633, half morocco. Philadelphia: P. Blakiston, Son & Co. Chicago: The W. T. Keener Co.

No period in the history of American medicine has been more prolific in the production of dictionaries than the present. The oldest work, that of Dunglison, has been supplemented by Thomas, Foster, Gould, Billings and Duane, and all have their good points. The dictionary of Dr. Foster, however, covers the medical terms used in the Latin, English, French and German languages, and is therefore of a different class from the others. The Century and the later editions of Worcester and Webster have given much more than the usual space to medical words.

The net result is, that the American physician of to-day is incomparably better equipped for the pursuit of medical literature than his predecessors. In the volume under consideration, the author has, so far as practicable, adhered to the reformed spelling. The author says: "I have usually recommended that in medicine the diphthongs æ and œ be supplanted by e; such usage is already well established as regards many words, and the suggestion is in strict harmony with etymology and the spirit of the language. . . . In the spelling of certain chemic words, the advice of the American Association for the Advancement of Science has, as a rule, been followed, and seems to be in the line of cautious and wise progress. The unanimous acceptance and practice of all these recommendations by the American Medical Editors' Association constitute a gratifying proof of progressiveness and freedom from irrational prejudice." The advanced and sensible views of the author in regard to spelling do not, however, seem to have influenced him in the pronunciation, and it is with regret that we observe his adhesion to the English pronunciation of medical terms of Greek and Latin derivation. It would be admissible if Latin were so pronounced the world over, but when the English speaking race are themselves divided, and all the remainder of the world essentially agree in pronunciation it seems a pity to maintain a factional and provincial position. The same British bull-headedness that insists upon calling Firenzi, "Florence," Napoli, "Naples," and Livorni, "Leghorn," persists in mangling the sonorous Tuscan sounds by a British accent that is as unnecessary from a scientific point of view as it is unintelligible to all our Continental brethren. From other standpoints the work is to be commended.

Transactions of the Indiana State Medical Society.—Forty-fourth Annual Session, held in Indianapolis, May 11 and 12, 1893. Pp. 378. Cloth.

One of the most interesting papers in this volume is that of Dr. Wishard, of Indianapolis, on the medical men and medical practice in the early days of Indianapolis. The days of the pioneer have passed in nearly every portion of our now great Republic. The railway, the telegraph, the daily newspaper and the medical journal now go everywhere, and local tradition in most cases is all there is left to

inform us of the mode of life of our predecessors, the difficulties under which they labored, and the professional triumphs they met with, then unheralded by the medical press. It is, therefore, not only a pleasant task, but our medical societies should insist upon it as a patriotic duty, that the work of the medical pioneers should be rescued from the unmerited obscurity into which they have fallen. This thought seems to have animated many of our medical societies by the number of historical papers now appearing in the annual volumes of transactions. Many an operation, such as that recorded of Dr. J. L. Richmond, at Newtown, Ind., who in 1824 successfully performed the Cæsarean section by the light of a tallow candle, would be permanently lost to the world but for the work of the medical historian.

Among the other papers in the volume are many of scientific value and more than passing interest.

A list of members and a list of all papers presented to the Society from its date of organization to 1893 are included.

A Manual of Instruction in the Principles of Prompt Aid to the Injured, including a chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A. Designed for Military and Civil use by ALVAH H. DOTY, M.D. New York: D. Appleton & Co. 1894. Chicago: A. C. McClurg & Co. Price, $1.50.

This little book is an excellent one, but has no particular *raison d' etre*, in view of the many excellent manuals already in existence on the same subject. There is nothing new or original in it, so far as we can judge. The illustrations are well executed and the typography all that could be desired

The Care and Feeding of Children; A Catechism for the use of Mothers and Children's Nurses. By L. EMMETT HOLT, M.D. Pp. 66. Cloth. New York: D. Appleton & Co. Chicago: A. C. McClurg & Co.

The method of questions and answers for inculcating various kinds of useful knowledge is one of the most practical and useful. This sanitary catechism should be read by every one having the care of infants or young children.

The Nurse's Dictionary of Medical Terms and Nursing Treatment.—Compiled for the use of nurses. By HONNOR MORTEN. Pp. 139. 32 mo. Cloth. Philadelphia: W. B. Saunders. London: The Scientific Press. 1894.

This is a handy little dictionary of the medical terms likely to be met with, or words that should be understood by nurses. It seems to be a selection from some of the larger dictionaries of the class of medical terms sought to be winnowed for the nurse's benefit. It is true that no learning may come amiss, but there are many words in the book that seem to have no special adaptation to the nurse's needs, especially as it is stated in the preface that "nurses are warned that this volume is merely meant to be used at the bedside as a temporary reference book until there is time to look up fuller works on the different subjects."

Transactions of the Fifteenth Annual Meeting of the American Laryngological Association, held at New York city, May 22, 23 and 24, 1893. Cloth. Pp. 165. New York: D. Appleton & Co. 1894.

This volume contains papers by Drs. Peyre Porcher, Delavan, Casselberry, Lincoln, Lefferts, Mulhall, Johnston, Farlow, Wright, Roe, Rice, Blois, Wagner, J. Solis-Cohen, Allen, Major, Bryan, Simpson and Robinson. All of which were published in the medical journals of that year. This volume also contains a well-written obituary notice of the late Franklin H. Hooper, M.D.

Saunders' Question Compends, No. 14.—Part I. Essentials of Refraction and the Diseases of the Eye. By EDWARD JACKSON, A.M., M.D. Part II. Essentials of Diseases of the Nose and Throat. By E. B. GLEASON, S.B., M.D. Second edition, revised, illustrated. Crown 8vo. Cloth. 1894. Philadelphia: W. B. Saunders.

However one may cavil at the whole brood of quiz compends, when they take the form of a catechism, there can be no real objection provided that the student is clearly informed that only the outlines of the subject are given. The book before us has passed to its second edition, and will doubtless reach many more. It is an excellent instruction book on the topics named in the title.

PUBLIC HEALTH.

Congress of Hygiene.—A committee of which Sir Douglas Galton is chairman, has been formed to further the interests of Great Britain at the Eighth International Congress of Hygiene and Demography which will be held at Buda-Pesth, September 1–8, prox.

Saving of School-Life.—In his last annual report Dr. U. O. B. Wingate, Commissioner of Health of the city of Milwaukee, shows a decrease from 509 deaths in 1892 to 378 deaths in 1893, among children of the school ages—5 to 20 years. On the basis of population this shows a reduction of from 2.07 per one thousand of the population at all ages in the former year to 1.45 per thousand in 1893. In the absence of any other apparent reason the Commissioner says: "It is possible that the work done in overhauling the school buildings and putting them in better sanitary condition is bearing good fruit."

The Plague.—Later advices from Hong Kong are less sensational and more reassuring, although the gravity of the situation is fully recognized. The early mortality figures seem to have been grossly exaggerated, the total number of deaths in Hong Kong to the 16th inst. being now reported at 1,708, with an average of 70 to 80 daily at that date. The fatality of the earlier cases, however, seems to have been quite as great as stated in the JOURNAL of the 23d. Europe, and especially Great Britain through her intimate commercial relations with the infected region, are more directly concerned in the outbreak than is this country. Hong Kong is the distributing center for all China and, as was pointed out by the *British Medical Journal*, if it is true as stated, that 100,000 Chinamen have fled from that city, many of them presumably plague-smitten, and are let loose in Canton and all over the Kwantung and Fokien provinces, this would portend an irremediable spread of the pest, threatening all commercial intercourse with Chinese ports.

Cholera in Europe.—Except in Russia, Asiatic cholera is attracting little attention, and even in that country it has disappeared from all but two of the eleven provinces or governments which have been infected since the beginning of the year. All the Portuguese ports, including Lisbon, are officially pronounced to be healthy and the country is free from any suspicion of cholera. There appears to be some ground for concern in Brittany, but the disease has disappeared from Finisterre and it is denied that France is threatened. The outbreak in Upper Silesia, near the Austrian and Russian frontiers, has been officially investigated and found to have been caused by a female tramp from Russian Poland. Cholera bacilli having been found in the waters of the Vistula near Dantzic the river has been forbidden as a source of supply. The promptitude of enforcement and the efficiency of the measures relied upon for the prevention and suppression of the disease are shown in these and similar investigations and actions, and warrant the anticipation that Europe will escape any serious infliction this year.

Is Syphilis Diminishing?—Dr. J. H. Musser, of Philadelphia, believes that syphilis is diminishing in prevalence and is of a milder type than that of twenty years ago. He defended this thesis in a paper presented to the Association of Amer-

ican Physicians, in the course of which he stated that from his studies of the records of the Philadelphia Hospital it appeared that the number of cases had diminished 50 per cent. in that period and were of a less malignant type. Dr. Henry M. Lyman, in the discussion which followed, said it was certainly true that in the Hawaiian Islands the disease had at present assumed a much milder type than formerly. *Per contra*, other speakers, among them Drs. Janeway of New York; Atkinson, of Baltimore; Post, of Boston, disagreed with the author of the paper and believed syphilis as prevalent and as malignant as ever. Dr. Musser discussed the question whether the assumed diminution of frequency and of severity was because the community is becoming immune to the syphilitic virus, because the virus is less active, or because of the change in the habits of cleanliness of the public.

Soils and the Cholera Vibrio.—Experiments by Dr. Dempster, in the laboratory of the British Institute of Preventive Medicine, on the influence of different kinds of soil on the bacilli of Asiatic cholera and of typhoid fever, lead to the following conclusions: White crystal sand, yellow sand and garden earth had no marked action on the organisms, their length of life depending chiefly upon the amount of moisture; peat, on the contrary, was very deadly to both the comma bacillus and the typhoid bacillus. The soil acted as a good filter, holding back most of the organisms, but it was possible for them to be carried through two and a half feet of porous soil by a current of water. In the discussion which followed the presentation of the results of these experiments to the London Medical and Chirurgical Society, the points of practical interest in preventive medicine that were brought out related to the value of the knowledge of a soil deadly to the bacillus—as in peat with its acid reaction; the relative rapidity with which the cholera vibrio dies in dry soil— none surviving beyond the fourth day in the dry sands or garden earth and all dying in one or two days in anhydrous soil, while in moist soils, with evaporation prevented, the bacilli were found alive on the one hundred and seventy-fourth day. On the other hand, Uffelman has shown that the typhoid bacillus could live for forty days on dry wool and for ten weeks in dry earth—a practical argument against the use of the dry earth closet; one speaker suggesting this as a cause of the present prevalence of enteric fever among the British troops in India, where the earth from the latrines, impregnated with typhoid stools and spread upon the land, may be so desiccated in that dry climate as to be readily blown about in the form of dust.

Tyrotoxicon Poisoning.—In the *British Medical Journal* for Sept. 23, 1893, an account was given of the alarm created among the visitors at Jeleznovodsk, one of the most frequented of the Caucasian group of watering places, by the occurrence of a large number of cases of irritant poisoning among the sojourners of the place. It was at first feared that cholera had broken out, but when all the cases were traced to the consumers of koumiss, and of koumiss from one particular source, it was suggested that the illness was due to arsenic or some other mineral poison. A medico-legal investigation was instituted, as a result of which it appears that, in the opinion of the medical experts examined, the symptoms of poisoning were due to a ptomaine. This ptomaine, they consider, was produced by want of cleanliness in the tubs or barrels in which the mare's milk underwent fermentation; and the owner of the dairy in fault has been sentenced to six weeks' imprisonment and to pay the costs of the investigation. In recently commenting upon this case the St. Petersburg correspondent of the *Journal* describes the various processes employed in the manufacture of koumiss; among the nomad Kirghiz and Baskkirs it is usually prepared in bags made of dried and smoked horse's hide, with the hairy coat outside, and fermentation is started by various means—a mixture of honey and flour, a piece of fresh horse-hide, an old copper coin, etc.; elsewhere it is made in wooden tubs or barrels and great care and cleanliness are necessary to the best results. In the Jeleznovodsk case sufficient attention does not seem to have been paid to the cleanliness of the barrels; but the maker of the poisonous koumiss asserts that his product has been prepared in the same way, his barrels washed out in the same way—with warm water only, not scalded—for the past twenty years, as his forefathers had made it for generations before him, and as hundreds of his contemporaries have done and continue to do. "But the risk is there; some day, without any warning, some new form of fermentation is set up in the mare's milk, a highly poisonous substance is produced, and nearly a hundred persons are made severely ill, five or six narrowly escaping with their lives." The "highly poisonous substance" is, undoubtedly, tyrotoxicon—the milk ptomaine discovered by Vaughn, of Ann Arbor, in 1886, and concerning which, as regards prevention of its development or detection before its ingestion, as little seems to be known practically to-day as before its identification. Early in the present month there were three groups of cases—twenty-two cases in all—of tyrotoxicon poisoning in Ann Arbor alone.

MISCELLANY.

New York Boards of Medical Examiners.—Drs. W. W. Potter, W. S. Ely and Maurice J. Lewis have been reappointed to the State Board of Medical Examiners by the Regents of the University of the State of New York. The "homeopathic" Board consists of Drs. Asa S. Couch (reappointed), J. Willis Candee and John M. Lee; and the "eclectic" Board of Drs. Lee H. Smith (reappointed), O. W. Sutton and M. H. Nichols.

Match-Makers Strike.—As a perfectly natural result of their occupation the employes of one of the French match factories recently went out on a strike. It appears that a governmental regulation requires each factory to employ a dentist to look after the effects of the phosphorus on the teeth of those employed. Examinations are compulsory at stated intervals and to escape from these at the hands of one dentist who caused much suffering the only recourse was to quit work. His occupation gone, the dentist resigned, another was employed and the strike was declared off.

Four Courses of Lectures.—The medical departments of the Willamette and the Oregon Universities, both located at Portland, Ore., have decided upon a compulsory four-years' course of lectures, and the State Board of Medical Examiners has adopted a resolution to the effect that, on and after July 1, 1898, it will not grant license to practice medicine in that State on the diploma, issued after said date, by any college that does not require of its graduates attendance upon not less than four regular courses or sessions of lectures of not less than six months each.

Ideal Standards of Medical Education.—There are indications of a reaction against the exactions of the idealists in medical education. In a discussion at one of the sessions of the recent Congress of American Physicians and Surgeons, Dr. J. Collis Warren, of the Harvard Medical School, advocated a thorough preparatory education of the student before entering a lecture room, so that he should have the A.B. degree, requiring four years; then four years in a medical school, one year in hospital and one abroad to finish his studies—making ten years in all. Dr. P. S. Connor, of Cincinnati, argued that it would be unjust to insist upon all students that they should first be in possession of the A.B degree, and then, possibly have to practice at some country cross-roads where the people around were unable to speak a single sentence correctly.

The Way the Boy Took Distasteful Medicine.—Mr. Martin, who runs the "Conversation Corner" of the *Congregationalist* admirably, for young folks, speaking of a boy who broke his leg says: "Well, he recovered (as broken-boned boys always seem to do) and was able to go Concord (Mass.) on Patriot's Day. Now I hear that he has been very sick with a dangerous disease, in which it was absolutely necessary for him to take medicine frequently, though very distasteful to him. (I don't think children ever like medicine very well, do they?) It was arranged in this way. He had long desired a bicycle. Now was the chance to earn it. A large picture of the wheel was put up in his room and a mark pencilled across a spoke or on the chain at every dose. So he paid for the whole and—at my last accounts—was recovering. On Memorial Day one of his friends sent him a letter which I had a chance to see and which I copied. The following is the last verse:

'You've earned your wheel, rubber and steel,
Spokes and chain, and all the gear;
Be patient, Phil, a few days still—
Then ride abroad like *Paul Revere!*'"

Education of the Country Doctor.—In responding to the toast, "Harvard University," at the annual dinner of the Massachusetts Medical Society, following its one hundred and thirteenth meeting, President Eliot said that, in looking back over the last twenty-five years, nothing was more clearly marked than the progress in professional education and in this medicine has taken the lead. There has been more gain in the education of physicians and surgeons than in any other department of the University. He had often felt the wish that medical schools in general, and those of Massachusetts in particular, were producing more country doctors. The country doctor should be given a chief place. He needs a better education than the city doctor. He has no specialist at his elbow. He must know himself, and act himself. The training of the country doctor is most important and needs to be developed, for he is more than a physician; he is a missionary; he is a social reformer—a sanitary reformer. He brings to his community the scientific spirit—a most valuable and important thing. The country doctor has one immense privilege and great happiness for his comparative isolation—that of living in the country—an inestimable prize for himself and for his family, as one who, from long observation of whence the most promising students come, can testify.

Washington Notes.

THE AMERICAN PHYSICIANS' SANITARIUM ASSOCIATION.—Dr. H. L. E. Johnson, Vice-President and Chairman of the Executive Committee has resigned his connection with the Association. This was followed by the resignation of the President, Hon. H. W. Blair, and at the meeting of the Board June 23, the concern was dissolved by mutual consent and the charter ordered to be surrendered. This ends the American Physicians' Sanitarium Association.

THE report of the Medical Society on typhoid fever and its relation to the sewer system and pump water supply in the District of Columbia, has been submitted to Congress and by that body ordered printed by the Public Printer. It will appear in a subsequent issue of the JOURNAL.

Hospital Notes.

DR. G. FRANK LYDSTON is surgeon-in-chief of the Masonic Hospital recently opened in Chicago.

DR. P. O. HOOPER, of Little Rock, remained in California in temporary charge of Dr. Whitwell's sanitarium at San José.

NEWARK, N. J.—At the next meeting of the common council of Newark, N. J., the Board of Health will endeavor to secure the passage of an ordinance to bond the city for the purpose of erecting a new city hospital. The present Legislature enacted a law under which the common council may bond the city in a maximum sum of $300,000 for this purpose.

CLINTON, MASS.—The first of a series of musicals to be given this summer in aid of the Clinton Hospital, Mass., was held June 6. The attendance was large and the program was finely performed by local talent. The affair was very successful and a good sum will be netted for the benefit of the hospital.

Medical College Notes.

THE BOARD OF TRUSTEES of the Medico-Chirurgical College of Philadelphia elected the following gentlemen to various chairs in that institution: Dr. Isaac Ott, of Easton, Pa., Professor of Physiology; Dr. William E. Hughes, Professor of Clinical Medicine; Dr. Albert E. Roussel, Assistant Professor of Clinical and of Practice of Medicine; Dr. Charles W. Burr, Clinical Professor of Nervous Diseases; Dr. William C. Hollepeter, Clinical Professor of Diseases of Children and Pediatrics; Dr. Arthur H. Cleveland, Clinical Professor of Laryngology; Dr. Edward B. Gleason, Clinical Professor of Otology; and Dr. William Blair Stewart, Lecturer in Therapeutics.

Prof. Edwin J. Houston and Dr. Henry Fisher were elected members of the Board of Trustees.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from June 16, 1894, to June 23, 1894.

First Lieut. FRANK T. MERIWETHER, Asst. Surgeon, is granted leave of absence for one month, on surgeon's certificate of disability, with permission to leave the limits of the Department.

Major JAMES C. MERRILL, Surgeon, is relieved from duty in the office of the Surgeon-General, to take effect July 1, 1894, and ordered to report in person to the commanding officer, Ft. Sherman, Idaho, for duty at that station. Granted leave of three months, to take effect July 1, 1894.

Major JOSEPH R. GIBSON, Surgeon (Ft. Snelling), is granted leave of absence for one month, on surgeon's certificate of disability, with permission to apply to the proper authority for an extension of three months.

Major JOSEPH R. GIBSON, Surgeon, leave of absence granted, on surgeon's certificate of disability, is extended three months, on surgeon's certificate of disability.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending June 23, 1894.

P. A. Surgeon I. W. KITE, detached from the U. S. S. "Lancaster," and granted three months' leave.

P. A. Surgeon E. W. AUZAL, detached from the U. S. S. "Lancaster," and granted six months' leave.

Surgeon T. H. STREETS, detached from the U. S. S. "Alliance," and granted three months' leave.

P. A. Surgeon J. F. URIC, ordered to the U. S. S. "New York."

Surgeon F. B. STEPHENSON, detached from the U. S. S. "Marion," and granted three months' leave.

P. A. Surgeon R. M. KENNEDY, detached from the U. S. S. "Marion," and to Mare Island Navy Yard.

P. A. Surgeon A. R. ALFRED, detached from the U. S. S. "Minnesota," and to the U. S. S. "Pinta."

Asst. Surgeon J. A. GUTHRIE, detached from the U. S. S. "Blake," and to the U. S. S. "Minnesota."

Asst. Surgeon B. R. WARD, detached from the U. S. R. S. "Vermont," and to the U. S. C. S. Str, "Blake."

Asst. Surgeon F. C. COOK, detached from instruction at Naval Laboratory, and to the "Vermont."

LETTERS RECEIVED

(A) Arend, A., Chicago, Ill.; Ayer, N. W. & Co., Philadelphia, Pa.

(B) Baum, F., Kansas City, Mo.; Bunce, Wm. C., Oberlin, Ohio; Ball, James Moores, Keokuk, Iowa; Burnett, C. H., Philadelphia, Pa.; Baker, A. R., Cleveland, Ohio; Bascom, F. S., Salt Lake City, Utah; Bond, Y. H., St. Louis, Mo.; Bates & Morse Advertising Agency, New York, N. Y.

(C) Conn, P. G., Concord, N. H.; Cutter, E., New York, N.Y.; Cobleigh, E. A., Chattanooga, Tenn.; Cory, A. L., Chicago, Ill.; Chaapel, V. P., Irvona, Pa.; Cleaves, M. A., New York, N. Y.; Cates, Ben. P., Knoxville, Tenn.

(D) De Schweinitz, E. A., Washington, D. C.; Douchy & Co., New York, N. Y.; Daly J. F., New York, N. Y.

(E) Eustis, W. C., Owatona, Minn.; Eastman, Joseph, Indianapolis, Ind., 2; Eastman, Thos. B., Indianapolis, Ind.; Eagleson, Jas. B., Seattle, Wash.

(F) Fox, Webster, Philadelphia, Pa.; Foster, Frank P., New York, N.Y.; Fee, Chas. S., St. Paul, Minn.

(G) Gibbons, C. C., Bertrand, Neb.; Goodell, Wm., Williamstown, Mass.

(H) Houston, I. M., San Francisco, Cal.; Harriman, J. W., Iowa City, Iowa, 2; Hills, Alfred K., New York, N. Y.; Hall, Rufus B., Cincinnati, Ohio.

(I) Inglis, David, Detroit, Mich.

(M) McCurdy, S. L., Pittsburg, Pa.; McGahan, C. F., Bethlehem, N. H.; Mulford H. K. Company, Philadelphia, Pa.; Malsbury, Geo. E., Cincinnati, Ohio; Magruder, G. L., Washington, D. C.; Moon, Addison S., Beaver Falls, Pa.; Merrill, J. C., Washington, D. C.; Montgomery, D. W., San Francisco, Cal.; Montgomery, E. E., Philadelphia, Pa.

(N) New York Post-Graduate Medical School, New York, N. Y.; Nowlin, A., Hulto, Texas.

(P) Platt, H. B., New York, N.Y.; Pantagraph Printing and Stationery Company, Bloomington, Ill.; Posman, A., Paducah, Ky.; Porcher, W. P., Charleston, S. C.

(R) Reyburn, Robt., Washington, D. C.

(S) Seymour, F. E., Fort Dodge, Iowa; Sauer, Frederick N., Racine, Wis.; Scribner's Chas. Sons, New York, N. Y.; Stearns, F. & Co., Detroit, Mich., 2.

(T) The Daggett Table Co., Buffalo, N.Y.; Topliff, C. L., New York, N.Y.; Tyree, J. S., Washington, D. C.; Truax, Green & Co., Chicago, Ill.; Tracy, Edward A., South Boston, Mass.; Tieste, L. E., Brooklyn, N. Y.; The Maltine Manufacturing Co., New York, N. Y.

(V) Vogeler, Adolf G., Chicago, Ill.

(W) Woodburn, J. H., Indianapolis, Ind.; Wertz, T., Evansville, Ind.; Wing, Elbert, Chicago, Ill.; Wyman, Walter, Washington, D. C.; Webster, S. H., Troy, N. Y.